Number 4 *Whole*
Volume XLVII *July, 1938* *Number 280*

THE
PHILOSOPHICAL REVIEW

THE SYNOPTIC THEORY OF TRUTH

THE CONFLUENCE OF DIVERSE THEORIES

THIS paper[1] is an attempt to state a new theory of truth, arrived at in a novel way; namely, by confluence of the old theories.

At the close of the nineteenth century there were two classical theories of truth, the correspondence theory, reaching back as far as Aristotle (and, in a crude form, to Empedocles) and the coherence theory, deriving from Spinoza. Then, in the twentieth century in America (strange the time and the place) appeared the pragmatism of William James and John Dewey. With three rival theories the situation was not satisfactory. Each theory had manifest defects. I shall attempt to analyse and generalise each of the three now classical theories in certain specific ways so that, as a result, a confluent theory is developed. This I shall call the synoptic theory of truth.

Criticism may be destructive or constructive. Destructive criticism is content to elicit the contradictions or inadequacies of a theory as it stands. A constructive criticism discriminates between imperfections of theory that are due to human frailty and those which are intrinsic to the theory. And it may stop with this. Or it may show how an imperfect theory can be supplemented and otherwise transformed so that it will be consistent and adequate. I shall attempt the latter type of constructive criticism.

The theory to be developed in this paper is based upon and is a

[1] Read in part before the joint meeting of the Western and Pacific Divisions of the American Philosophical Association, University of California, Berkeley, 1930.

continuation of a previous account of objective reference.[2] The two papers are parts of an inclusive whole.

I. THE VARIETY OF PROPOSITIONS AND OF THEORIES

At the beginning of an attempt to formulate a theory of truth it is well to follow a maxim of William James in another quest. I shall consider briefly the possible varieties of truth. The variety of truth, if there is such variety, will presumably depend upon the variety of propositions or assertions, since it is primarily propositions or assertions that are true or false. I shall understand a proposition to be the meaning or objective of a thought, which meaning is sufficiently complete to be believed or disbelieved. A proposition is usually expressed in words. The meaning I shall call a *proposition,* the thought I shall call an *assertion,*[3] the expression in words I shall call a *statement.* Truth may be regarded as a property of a proposition, an assertion, or a statement, since the three are correlative. The statement by itself is a verbal fact and could be true or false only through an assertion which supports a meaning. The assertion is significant for truth and falsity only in so far as it supports a meaning or objective. We may go further and say that an assertion has existence only in so far as it supports a meaning or means a meaning (a meant). And a propositional meaning has a status only as the meaning of an assertion.[4] Hence truth primarily may be regarded indifferently as a property of either a proposition or an assertion, since neither has a status apart from the other. Secondarily, truth may be regarded as a property of a statement. The same proposition may be believed or disbelieved, accepted or rejected. It may also be doubted, or simply entertained. If there is belief or disbelief the mental state is a judgment. The proposition or objective may or may not be an actual fact or object; it may or may not exist.[5]

Propositions have been classified in many ways, none of which seems entirely satisfactory. I shall make an epistemic classification,

[2] "On the Nature of Objective Reference," *Jour. of Phil.,* XXIII, 1926, pp. 393-407; also, for a short statement of some of the relevant theses, "Possibility and Pluralism", *University of California Publications in Philosophy,* XVII.

[3] I use the word 'assertion' for the thought. It may or may not be accompanied by belief or disbelief.

[4] In acquaintive propositions the meaning is internal to the assertion.

[5] "On the Nature of Objective Reference." See also "Possibility and Pluralism," 201-3; 205-7.

one which is suitable for this paper. My division of propositions is as follows.

0. *Propositions of acquaintance.*—The subject and the predicate of the proposition are both objects of acquaintance and the latter is applied directly to the former by a movement of attention in the field of acquaintance. The subject is a particular or particulars, the predicate is an attribute of the particular or a relation between particulars. In these propositions no variables are present. By common consent there is no truth in static acquaintance, that is to say, in those cases in which we are aware of an object in one stroke of the attention with no distinction of subject and predicate; and propositions of acquaintance have been doubted, but I can see no reason for the doubt. When, as a philosopher, I say 'this[6] is green'[7] I am usually not thinking 'this is an instance of *something* which is green'. When I say 'this is on that', I am usually not thinking 'this is an instance of *something* which is on that'.[8] To fail to distinguish between these two kinds of propositions, namely those of acquaintance and of what I shall call observation, is Russell's "disgrace to the human race".[9]

Propositions of the next six classes all contain variables.

I. *Propositions of observation.*—These propositions must be discriminated from those of the zero class.[10] In observation the subjects are objects of acquaintance, or particulars, but as distinguished from propositions of acquaintance these propositions employ variables as predicates. Simple examples are: 'this is an instance of something which is green'; this is not an instance of something which is on that'. Here we have identity or diversity between particulars and variables, or better, identity between a particular and some instance of the variable, or diversity between a particular and every instance of the variable.

I-A. *Propositions of reflection.*—The preceding propositions are meanings, but they are not characterized as meanings; our thought sustains these meanings, but we are not thinking of our thought as

[6] A datum. [7] A determinate.
[8] Still less 'this is an instance of something on something of which that is an instance'. [9] *Introduction to Mathematical Philosophy*, 172.
[10] Obviously the verbal expression which is proper for the zero class is sometimes used for the first class. In common sense or scientific judgments the same verbal statement is used for propositions of the second class, as, for example, when I am about to test a piece of cloth in daylight, or when I am to discover whether the color falls within a determinable range, or whether the color is precisely like a standard determinate.

sustaining meanings. Reflective propositions are descriptions of our direct experience as having or sustaining meanings. Most of these propositions are secondary propositions, that is to say, propositions about propositions, but they may also include propositions about functions that are too fragmentary to be ordinarily called propositions. They include definitions as understood by the definer.

II. *Propositions of ejection.*—By these (following Clifford) I mean all propositions concerning facts or supposed facts which lie either wholly or partly beyond direct experience. These facts include one's past, one's future, other selves, and the external world. This is obviously the largest class of propositions and the class around which most of the controversy concerning truth has centered. These propositions may be divided into singular and general propositions, conditional propositions being regarded as negative general propositions. Propositions describing natural laws are general and, in part, negative. Singular ejective propositions may describe the same facts or supposed facts as observational propositions but the facts are described from a distance, so to speak, and are always, in part, an object of reference.

II-A. *Propositions of communication.*—These are propositions about the meanings of other persons or my own meanings at other times or about someone's meanings in general. Most of them are secondary propositions. They obviously have an ejective component but they go beyond this component since they are propositions about the meanings or propositions which ejective minds mean. They include communicative definitions as understood by the hearer or reader. Communicative propositions may describe the same facts as reflective propositions but from a distance and always, at least in part, as objects of reference. This is a much neglected class.

III. *Propositions of direct entailment.*[11]—These are propositions of entailment or inconsistency between meanings where the relevant meanings are all before the mind and the entailments or inconsistencies may be, as it were, exhibited. They are modal propositions. These are, for the most part, subject to mathematical treatment.

[11] See the important article by Everett Nelson, "Intensional Relations", *Mind*, XXXIX, N.S., 1930, pp. 440-453.

IV. *Propositions of indirect entailment.*—These are propositions of entailment or inconsistency where the meanings are not fully developed, and the entailment or inconsistency is not directly apparent. They are theorems which can only be established by the full development of all the relevant meanings. This development is itself a matter of reference, and there is no direct insight. The relation of type IV to type III is similar to the relation of type II to type I, or of type II-A to type I-A. This class is almost entirely neglected in epistemic discussions. Since all propositions of entailment are analyses of abstracta (or so-called universals) they may be called adjectival propositions.

V. *Propositions of conjunction.*—These are compounds or aggregates of propositions but the aggregate is also true or false. These are, of course, submissive to mathematical treatment when we consider them in their relation to their components but they are not in themselves entailments.

It is interesting to note that material implications are negative propositions of type V, and that formal implications are negative propositions of type II. Entailments or implications proper are of types III or IV. All these classes include negative propositions.

The zero class, together with class I and class I-A—acquaintances, observations and reflections—deal with presented facts or the meanings of presented facts; class II and class II-A—ejections and communications—deal with absent facts or the meanings of absent facts. Class III—direct entailments—deals with what we might call presented meanings, and class IV—indirect entailments—deals in part with absent meanings. Assertions of propositions of the zero class and classes I, I-A, and III are cases of direct insight. Propositions of classes II, II-A, and IV are hypotheses. The relations of the various propositions may be shown by a table.

TABLE I

	Factual	Factual with meaning	Adjectival
Direct	o and I	I-A	III
Indirect	II	II-A	IV

As the second part of this introduction I wish to give a classification of theories of truth, although such a classification is only a first approximation. We may distinguish between likeness and unlikeness theories, so-called homeopathic and allopathic views. We may also distinguish between psychological and logical accounts, that is, those which lay the greater emphasis on the mental states of thought or judgment and those which emphasize propositions. A cross-classification of these two divisions gives the following table:

TABLE II

	Psychological	Logical
Correspondence	1. Copy theory	2. Identity theory
Non-correspondence	3. Pragmatism or Instrumentalism	4. Coherence theory

What I have called the identity theory is frequently called a copy theory, although it goes beyond mere copying. According to this view, when I think that Caesar crossed the Rubicon the object of my thought is not something like Caesar but it is Caesar himself. To these four views should be added two others. First, there is the so-called intuitionist theory, a direct insight theory. This is, in a way, simpler than the other four views since it does not involve any objective reference. This I shall call the zero theory. Second, there is an early theory of Bertrand Russell, since, I believe, discarded by him, which makes truth something unique, an unanalyzable flavor which attaches to some propositions but not to others. This I shall call the adherence theory. The complete schedule of theories is then as follows.

0. The Intuitionist theory.
1. The Copy theory.
2. The Identity theory.
3. The Pragmatic theory, or Pragmatism.
4. The Coherence theory.
5. The Adherence theory.

It seems clear that the intuitionist theory has an obvious affinity to propositions of acquaintance, the zero type; the correspondence theory is based primarily upon observational propositions of type

I; pragmatism is a theory of the truth of ejective propositions of type II; the coherence theory is apparently based upon mathematical propositions of type III (which may be easily extended to type IV).

II. PRAGMATISM

I shall begin with pragmatism. Professor Lovejoy once wrote an article he called "The Thirteen Pragmatisms". It stated thirteen theses found in writings of pragmatists, and more could have been added. But there are only two pragmatisms of fundamental importance: first, the verification theory, and second, an extreme ethical or utilitarian view. James's original view was based upon his theory of objective reference which is contained in his papers of 1885 and 1895. According to these, reference is solely to the future of the stream of experience. Dewey accepted this view of objective reference, adding that the meaning is always a plan of action. Hence, according to James and Dewey, the truth process consists in the verification of this meaning or plan. In James's *Pragmatism* another view appeared, possibly derived from Schiller. This was the view that truth consists in any useful consequences of an idea or belief. These two views were in juxtaposition in this book.[12] Later, James returned to his original theory. The extreme view I shall call pseudo-pragmatism; it is obviously false.[13] The verification view I shall call pragmatism or instrumentalism.

According to James all propositions are predictions. Hence the original of truth is the verification of a prediction; but James generalizes. We have a first derivative. Propositions are also true when they are not verified but are capable of verification. Verifiability is as good as verification. Such a generalization is perfectly proper and fully justified. But James mentions also indirect verification. I get into the neighborhood of the tigers in India. "Caesar *had*, and my statement *has*, effects; and if these effects in any way

[12] Schiller's view in Lecture II; to some extent Schiller's view, but mostly James's original view, in Lecture VI.

[13] It is false for these reasons: (1) This is not the meaning attached to the word 'truth' by those who are not pragmatists. Pseudo-pragmatism attaches a new meaning to the old word. (2) It is not what the pseudo-pragmatist means by truth, since he does not attempt to prove his theory by showing that it has good consequences. (3) Pseudo-pragmatism must rest on non-pragmatic truth. That an idea actually has good consequences is a truth of either identity or verification. To this may be added that pseudo-pragmatism has not so far been found satisfactory by the philosophical world.

run together, a concrete medium and bottom is provided for the determinate cognitive relation."[14] Professor Lewis in his recent *Mind and the World-Order*[15] has shown that an indirect verification may be regarded as a partial direct verification if I consider the chunk of reality that stretches from Caesar to my future reading of his Commentaries. I may verify this chunk in part—that is to say, the reading part. Nevertheless, it remains true that all the parts of such a sector of reality that are not directly verified or verifiable are only indirectly verified or verifiable, so there is no real advance.

It is clear that pragmatism as it stands is not an adequate theory of truth.

1. It is incomplete, because it is not an account of all our varieties of truth. Truths of acquaintance and observation, as well as truths of entailment, are all excluded. In one lecture on pragmatism these are called facts.[16] In another lecture[17] James mentions mathematical truths, but he has no real place for them in his system.

2. James's whole theory is built upon an incomplete account of objective reference. The two most important defects are these. First, all reference is to the future. He provides no reference to the past, or to present existences, or even to the greatest part of the future of other selves and the external world. Second, the reference is always to a mere beyond, a somewhat; in logical terms, a variable. Hence all verification is functional. The only verification we have is to say at the end of the process, 'this is what I meant'. In another paper the writer has shown at length how James's theory must be amended and generalized to provide a satisfactory account of objective reference.[18] First, we refer by means of any relation, either forward or backward in time, or outward in non-temporal ways. Second, by a synthesis of thought we qualify a variable as possessing definite properties so that we have definite meanings in general and definite anticipations of the future in particular. If I understand Dewey correctly, my variable corresponds to his problem, and my definite qualification to his

[14] *The Meaning of Truth*, 222.
[15] Pp. 150 ff.
[16] *Pragmatism*, 244 f.
[17] *Ibid.*, 209 ff.
[18] "On the Nature of Objective Reference."

hypothesis. Hence, this second part of my amendment does not apply to his view.

3. James's verification involves the backward reference since we say at the end of the process, 'this is what I meant'. This third defect of pragmatism is obviously due to and a part of the second, but it displays this definite inconsistency.

4. Indirect verifiability of the past or of anything else is obviously not what any of us mean by truth. I shall discuss this more fully later.

Now it is possible to build a generalized pragmatism on this generalized theory of objective reference.

1. It is necessary to analyse the process of verification. Verification, according to James, is an "ambulatory" process which leads to a terminus where we confront reality with the same proposition which we had at the beginning and realize that the proposition and the fact are identical. Let us use the word 'confrontation' to mean not only the juxtaposition of the proposition and the fact but also the identity of the fact with what the proposition describes. It follows that the consummation[19] of the process of verification is confrontation. Strictly speaking, verification is confrontation because the proposition is not verified until confrontation takes place. Confrontation is the basic meaning of verification. Obviously, the original proposition entertained at the *terminus a quo* is an ejective proposition of type II, and what we now verify through confrontation at the *terminus ad quem* is an observational proposition of type I. But the entire logical import of the latter proposition is included in the meaning of the former proposition. Presumably, the ejective proposition was a conjunctive proposition which contained some account of the road that would be followed in order to reach the consummation; it contained a plan of action as Dewey has described. The account of the road has already been verified as we proceeded along the way. There are intermediate consummations before the final one but these are also confrontations. In every instance confrontation is the basic thing. It is the original of verification.

Further, in propositions of acquaintance, as I have defined them, a proposition may be said to be verified at the time it is made,

[19] I owe this term, in this connection, to Professor Loewenberg.

since the assertion of the proposition is an acquaintance with the facts. Should one hold, with James, that these are not propositions but just facts, the generalization is abortive; but if one agrees with the present writer that propositions of acquaintance are genuine propositions, this extension of the meaning of verification is necessary and proper. It may even be the case that the verification or confrontation of observational propositions takes place by means of acquaintive propositions rather than through bare acquaintance with the facts.

This extension of truth to the limiting cases of confrontation of observational propositions and the immediate truth of acquaintive propositions is my first generalization of pragmatism.

According to this generalized pragmatism the ejective proposition at the beginning of the verification process is true because the process will lead to the truth of the corresponding observational proposition at confrontation. This truth now becomes the first derivative.

The proposition which could lead to verification but will never be verified is also true. This I shall call psychological verifiability. This becomes the second derivative.

2. Now follows the second and all-important generalization. There are propositions referring to the past or to inaccessible regions of space or to other minds. Such propositions are actually unverifiable but they are true provided they would be verified if we could "remount the past" or reach these inaccessible regions.

As we have seen, James considered such truths, at least truths about the past, and called them indirect verifications.[20] Lewis also considered them and showed that such verifications are direct and partial. The two words, *indirect* and *partial*, are two ways of expressing the same situation. James and Lewis, in a sense, generalized their theory by passing from direct to indirect verification. This question of indirect verification is a crucial one for pragmatism. That the truth of a proposition consists in its partial or indirect verifiability may be shown to be untenable.

First, if I think of a whole which contains *a* and *b* I do not mean that the truth of the proposition '*a* exists' consists in the verifiability of *b*. The truth of the proposition that there are tigers in

[20] James, *Pragmatism*, 214.

India does not mean that I can reach their neighborhood, or, to speak more accurately, what is their neighborhood if they exist. I mean by its truth the direct verifiability of the tigers. The truth of the proposition that Caesar lived does not consist in the actual or possible reading of certain books called "Caesar's Commentaries". It means that if I could "remount the past" I would come face to face with Caesar. Indirect verifiability is truth in a Pickwickian sense.

Second, the thesis is brought out clearly by the difference between a scientific theory and an historical proposition. Both are verified indirectly. Let us suppose that the historical proposition is that 'Tu Fu wrote poems', and the theoretical proposition is that 'there are electrons'. Each is verified by certain facts supposed to be consequences, in the one case of Tu Fu's writing and in the other of the existence of electrons. The only certain truth is 'it is as if Tu Fu wrote poems', and 'it is as if there are electrons'. Both a positivist and a realist are convinced by indirect inductive evidence, into the nature of which it is not now necessary to enquire, that Tu Fu wrote poems. But the realist accepts the validity of the principle of parsimony and believes there are electrons; the positivist rejects the validity of parsimony and does not accept any scientific theory as expressing facts. Obviously the truth of the proposition that there are electrons does not consist in indirect verification since the indirect verification is the same for both positivist and realist. The difference between the positivist and the realist, if both are to be consistent pragmatists, is that the former does not know whether electrons would be positively verified if the means for a direct verification were available, while the realist thinks they would be verified directly and positively in such circumstances. The former believes there is no probability of a direct verifiability, the latter believes there is such a probability. Both positivist and realist believe that Tu Fu wrote poems and that the truth of the proposition that Tu Fu wrote poems would be verified if we could "remount the past".

As long as we have direct verification the meaning of truth and the test of truth do not diverge. But in any verifiability the divergence takes place.

(1) Let us consider first propositions that *will* be verified. There

are frequently present tests that make probable their future verification. But it is the future verification that makes them true.

(2) In propositions that will never be verified but which are *psychologically verifiable* the indirect verification is all that we achieve. But pragmatists, when they accept the truth of such propositions, believe not that they are indirectly verified but that an actual verification could take place.

(3) In propositions that *can never be directly verified* the test is still indirect. We may rely on the firm conviction of memory, we may accept the validity of irrelevance for negative propositions, we may accept the validity of parsimony for positive theoretical propositions. But the fact of indirect evidence is not the same as the truth of the propositions. There is no essential logical difference in the meaning of truth between propositions about the other side of the moon, the inside of the sun, atoms, other minds, and my past. Future men might reach the moon, but that would not verify its other side now. When an enterprise is absolutely impossible in fact, it is absolutely impossible in fact. But it may be logically possible. To "remount the past" would probably involve a greater change in the structure of being than any other possible proceeding mentioned, but time-machines have been conceived and are logically possible. As a matter of fact, I am surer of the truth of certain memories than of any other ejective truths, and without the truth of memory we could not extrapolate to the future and could not predict.

In conclusion: in all propositions referring to inaccessible regions of space or time or other minds it is not indirect verification which constitutes their truth but the possibility of direct verification *if it could be applied*. This I shall call logical verifiability. This becomes a third derivative.

There is also a fourth derivative which for purposes of economy I have hitherto omitted. Most propositions are not fully developed and only a part of the meaning is entertained.[21] Purely verbal expressions which are "pitched" in some direction[22] are true if they lead to meanings which are verifiable in any of the above senses. In general, any proposition which is incomplete is true insofar as

[21] "On the Nature of Objective Reference."
[22] James, "On the Nature of Cognition", *Mind*, 1885.

our entertaining it leads to meanings which are verifiable in any of the above senses.

To summarize: propositions are true when they *are* verified or if they *will be* or *can be* or *might be* verified, and verbal or other undeveloped statements are true when they can *lead to* verification or any one of the verifiabilities. We must note, however, that all propositions that are verified, or will be verified, or can psychologically be verified are also logically verifiable. This last is the all inclusive generalization. The original of truth is confrontation and acquaintance, the widest extension is logical verifiability and the leading thereto.

It is a simple matter to extend this account of truth to propositions of communication and reflection. The consummation of the verification of a communicative proposition is the immediate verification of a reflective proposition through the confrontation of the latter with the fact of the appropriate thought with its sustained meaning.

We must add, further, that other truths of direct insight, namely, entailments, must take their place with confrontation as originals of truth if pragmatism is to be made adequate. We now have what seems to be a tenable theory of the remainder of truth. I know of only one argument against it—that this is not what we mean by truth. Concerning this, more will be said later.

III. THE ANALYSIS OF CORRESPONDENCE AND THE CONFLUENCE OF THE CORRESPONDENCE THEORY AND PRAGMATISM

The copy theory proper is easily disposed of. This theory holds that truth consists of a likeness between a mental picture and a transcendent reality. It is obvious that a mental picture could not be the truth about anything unless it referred to it, unless it had a meaning which is identical with the thing itself. The meaning in question is the proposition. It is propositions or assertions of propositions that are true or false. No doubt the proposition includes components that are abstracted from experience but it includes also other constituents that are only referred to and it is the proposition as a whole that is true. So the copy theory gives way to a coincidence or identity theory—as Hegel would say, 'the truth of the copy theory is the identity theory'. One might maintain, of

course, with G. E. Moore, that a judgment is true when it sustains a proposition which expresses the fact;[23] this would change our nomenclature but not the actual situation.

It may be maintained that the relation between the true proposition and the fact may be one of accordance. Mr. W. E. Johnson says,[24] "it is at the present day agreed that this relation cannot be taken to be identity, and the notion of correspondence has been put forward in its place. . . . The truth of a judgment expressed in a proposition may be said to mean that the proposition is in accordance with a certain fact. . . . In this way the somewhat vague conception of the correspondence between thought and reality is replaced by the relation of accordance with a certain fact attributed to the true proposition." But the meaning of accordance is as vague as the meaning of correspondence; both words seem to mean undetermined likeness, and there is no way of evading identity. When I assert that there are jaguars in Mexico I am thinking of jaguars and Mexico; if I were only thinking that somethings (which happen to be like jaguars) are in something (which happens to be like Mexico), then the fact that there are jaguars in Mexico could not make the proposition true. Further I could not say, with truth, that my proposition is like the fact unless I thought of the fact. Doubtless the facts include more than the proposition but the latter is identical with the facts so far as it goes. Similarly, false propositions are propositions which are partially diverse from the facts.

So far we have dealt mainly with ejective truths, but a similar view holds of communicative truths. When I entertain a true proposition about another person's meaning, a part of my meaning is identical with his. This view may easily be applied to truths of acquaintance and observation where we are in the immediate presence of the facts. Truth is identity. The copy theory is displaced by the identity theory. Hereafter we shall frequently call the identity theory 'the correspondence theory' without further qualification.

The first part of our analysis of the identity theory deals with identity and diversity. In the first place, identity is nothing posi-

[23] *Proc. of the Aristotelian Society*. Sup. vol. VII, pp. 199 f. This is what Moore's definition boils down to, but it takes much boiling.
[24] *Logic*. Pt. I, pp. 16 ff.

tive. The identity of A with itself is not two facts—A and identity. To say that A is identical with itself is not to say nothing, as Wittgenstein asserts; it is to say that A is not diverse from itself. Identity is nothing actual; it is the absence of diversity. The identity of an entity with itself is trivial. The identity between an entity which has one predicate and an entity which has another predicate means that an entity has both predicates; we add nothing if we say 'the same entity'. In truth situations already discussed the proposition is a fact; or to express the same situation in another way, the fact is asserted.

In the second place, the original of diversity is actual. But some diversities are only possible; they are not actual. Suppose I say that the color of this paper is other than the color of the plumage of a quetzal in Yucatan. I need not suppose that there is any actual rod of connection running from the paper to the plumage. If absolute idealism were true such might be the case, but I need not assume that absolute idealism is true. Concatenism may be true instead of monism. Again, when I say that Caesar's crossing of the Rubicon is prior to the present, I need not assume an inclusive whole within which the relation falls. If time carries things to extinction this could not be true. Once more concatenism is possible. Even if monism is true, it cannot give a factual status to all relations of diversity, for diversities sometimes run from facts to mere meanings. This is the situation with the diversities of ejective falsity. If I should say 'there is a mock-turtle', the falsity of this proposition would mean that all the facts of the universe are other than a mock-turtle. Now there is no mock-turtle and I cannot suppose that each fact of the universe has an actual relation that sticks out from itself and connects itself with that which is not. Such relations are only hypothetical; they would become actual only when an actual fact and the meaning of the mock-turtle were brought together in a confronting mind.[25]

In general, falsity has a derivative status because propositions diverse from facts are not always or even usually actually confronted with the relevant facts. Such propositions are false only in the sense that they would be found to be diverse from the facts if confronted with them. When I say that Caesar crosed the Hud-

[25] For a more complete description of the nature of diversity, see "Possibility and Pluralism", 220.

son, that proposition is false because it is diverse from all the facts of Caesar's life. I am not obliged to accept the hypothesis that there is a mind which includes these manifold facts and which makes the confrontation. I need only to suppose that if the confrontation were made the diversity would be found. To return to a true proposition. When I say it is true that Caesar crossed the Rubicon I mean that if the confrontation of all the facts of Caesar's life with the proposition were made, the proposition would be found to be identical with one of the facts of Caesar's life. This ends the first part of the analysis of the correspondence theory.

We have reached a theory which is precisely the same as our generalized pragmatism. Confrontation is the same as the pragmatist's final verification. A true proposition is one that either is verified if there is actual confrontation, or that would be verified if the confrontation were made. All verifiable, as opposed to verified, truth is "saltatory", to use James's phrase. All verified truth is confrontatory. Ambulation is the human process of connecting the two, but most truths remain saltatory.

The correspondence theory, as analysed, obviously applies to reflective and communicative propositions except that in these cases we have not merely confrontation of propositions and facts, but confrontation of propositions and facts sustaining meanings.

IV. THE CONFLUENCE OF THE COHERENCE THEORY WITH THE PREVIOUS UNIFICATION

I come now to the coherence theory. This is the view that truth consists in the consistency of our propositions. The theory takes two forms. According to Bradley's view (which is derived from Hegel), which I shall call the extreme coherence theory, all finite truth is in part contradictory and therefore partly false; only the entire unified body of propositions is wholly true. This view is based upon Hegel's and Bradley's doctrine of the internality of relations and has been, in my opinion, abundantly refuted by both Russell[26] and G. E. Moore.[27] Then there is the moderate form of the coherence theory, derived from Spinoza and Kant, which is unattended by this complication. Bradley is, however, the best

[26] "The Monistic Theory of Truth", in *Philosophical Essays*.
[27] "External and Internal Relations", in *Philosophical Studies*.

expounder of the coherence view in general and I shall follow him in my exposition.

At the beginning, Bradley is compelled to admit that comprehensiveness, as well as consistency,[28] must count, but even with this amendment the theory is untenable.

1. Our whole network of true propositions must be anchored to our acquaintances with and observations of experienced facts. These are in principle certain and they have a practical certainty which far outweighs the certainty of propositions that go beyond the duration-block.

2. Consistency and comprehensiveness, when taken together, are not a sufficient test or a sufficient meaning of the truth of propositions that express facts beyond direct experience. It is true, as Bradley says, that the system of propositions based upon memory and testimony and scientific reasoning is more comprehensive than all our dreams and fancies. But if there should arise a race of poets who imagined a still more comprehensive set of consistent propositions, that would not make these propositions true. Actually, our propositions are weighted by certain assumptions—memory and some measure of uniformity are essential. These assumptions do not, of course, make the propositions true, but they upset the test of comprehensiveness.

3. There are many faery tales that are internally consistent and not mutually inconsistent and not inconsistent with the great body of common sense and scientific truth. The most comprehensive body of consistent propositions would include all these faery tales, but we would not believe them to be true. The inductive problem is not yet solved, but the propositions that we accept as true are supposed to be based on practically necessary assumptions and probable inference.

4. Comprehensiveness and consistency of such propositions as we can frame is plainly not what we mean by truth. The coherence theory, as it stands, is untrue.

It is possible, however, to generalise the coherence theory in two ways.

First, comprehensiveness may be extended to include not only

[28] Consistency entails comprehensiveness in Bradley's extreme coherence theory. Cf. *Essays on Truth and Reality*, chs. 7 and 8.

propositions but also all relevant facts, both those in the direct experience of some mind, and those which exist beyond any one mind or beyond all minds. Consistency alone would then become the meaning of truth. Falsity would be either (1) the internal inconsistency of a proposition or (2) an inconsistency between two propositions, or (3) an inconsistency between a proposition and the facts. This would include not only mathematical falsities, but all other types of falsity as well.

Second, we may generalise from an actual knower of inconsistencies to a possible knower. This is the all-important generalization. It is similar to our generalization from psychological to logical verifiability in pragmatism. These two generalizations of coherence are closely connected. I shall call them generalizations three and four.

We shall return now to our analyzed identity theory, which is the same as our generalized pragmatism. We have seen that the original of truth is confrontation and the inclusive derivative is logical verifiability. We must now consider the status of verifiability when the confrontation is not made. To say that if the confrontation were made we should have positive verification is obviously a conditional proposition, and all conditional propositions are negative propositions. Let C stand for confrontation. Let P stand for identity or positive verification, and let P′ stand for negative verification or diversity. Then if the confrontation is not actually made both $CP=0$ and $CP'=0$, since in both cases C does not exist. Clearly, since there is no verification at all, neither positive nor negative verification takes place. There is one way and only one out of the difficulty. If the proposition in question is true, positive verification does not occur, but negative verification not only does not occur but could not occur. CP is not actual, but CP′ is impossible. CP is logically possible. Truth is possible verification; falsity is impossible verification. Now the only thing that is logically impossible is contradiction.[29] Falsity is contradiction; truth is non-contradiction or tautology. Not all diversity is falsity. Falsity is a specific kind of diversity, namely, contradiction. A false proposition is one which means that something is other than itself, or has

[29] For synthetic incompatibility, *vide* "Possibility and Pluralism", 204 f.

properties other than those which it does have. This is the second piece of analysis of the correspondence view. The surprising conclusion is that the truth of extensional propositions is tautology.

The confluent correspondence and pragmatic theory is adequate to explain the truth of propositions of an extensional logic. But it may be generalized at once to include the truth of propositions of entailment of an intensional logic since their falsity consists in contradiction and their truth is tautology. As the result of our last analysis we found that all falsities are contradictions. We now say that all contradictions are falsities. Contradiction and falsity are one and the same thing. Falsity is contradiction; truth is tautology. This is a part of our fifth generalization.

In dealing with the truth of entailment, *i.e.*, with intensional truth, the pragmatists and the correspondence philosophers have followed different paths. The former (James and Dewey) have denied analytic truth entirely. According to James, analytic truth is a fact. This is an easy verbal solution but it is entirely sterile. It expands the meaning of the word fact and contracts the meaning of the word truth. The correspondence philosophers have invented supposed facts with which the propositions correspond. The truth of a mathematical proposition, however, is not its correspondence with facts. Euclidian geometry would be true were there no Euclidian space. If space is non-Euclidian there are neither equal nor unequal vertical angles in Euclidian space; nevertheless Euclidian geometry discriminates between them. It holds that the former are consistent and the latter inconsistent. Such devices of the ordinary correspondence theory and pragmatism are unwarranted and we now see that they are unnecessary, since all falsity is inconsistency.

It is only fair to William James to say that he regarded all truths of direct insight, including mathematical propositions, as 'facts' of immediate perception,[30] although he also calls them 'truths'.[31] I think it is preferable to adopt a catholic denotation of truth[32] since first, that is the ordinary acceptation (which James

[30] *Pragmatism*, 245. [31] *Op. cit.* 209.

[32] Similar remarks will apply to other important concepts of philosophy. In an initial consideration it is always wise to make the denotation of a term as extensive as possible and it is usually advisable to do the same in the final consideration. The narrowing of extension is unwarranted. For example, Bergson limits knowledge to acquaintance (although he does use an

at times also shares) and second, if statements of mathematics are excluded we must form the concept of 'correctness', and truth and correctness will then be two species of a wider genus which must have a name and theory. In order to make pragmatism a tenable theory of all truth I shall now propose the extension of the word verification to include all truths of direct insight, *i.e.*, not only truths of acquaintance and observation but truths of direct entailment as well. Truth, then, according to this generalized pragmatism, will include verification and the various verifiabilities already described. This extension of the word verification is a part of the fifth generalization of this paper.

There is, of course, a difference between the falsity of ejective, communicative, and indirect adjectival propositions on the one hand and the falsity of propositions of direct insight on the other hand. In the latter the contradictions are in the data. We may be certain of them. In the former we have only a probable and not a certain knowledge of the contradiction since the contradiction lies beyond the data in the objects of reference. And so of truth. Truth of direct insight is known tautology; truth of propositions that

---

argument which seems to me fallacious: that description always distorts). Dewey, on the other hand, confines knowledge to description. Similarly, beauty has been variously defined so that pure mathematical pattern, or sensuous blends, or even the sensuous material of a patterned form are excluded. In the concept of truth, description of presented fact has been excluded, logical and mathematical analysis has been excluded, what I call logical verifiability has been excluded. In these three instances a new generic name must be invented and the old name applied to one of the species.

The latest attempt to narrow the concept of truth is that of logical positivism. This theory is essentially pragmatism or instrumentalism and, in spite of its name, does not allow what I have called logical verifiability. Propositions which could never be verified psychologically (or physically, as the logical positivists would say) are declared to be meaningless. Thus propositions about other persons' minds are said to be meaningless although they obviously are significant and are capable of indirect verification. Further, without acceptance of the truth of propositions of memory, the logical positivist could make no valid prediction of the future and without the truth of propositions that there are other minds, the whole notion of intersubjective intercourse would go to the ground, and practical solipsism would result. Verifiability of other minds is even said to be contradictory since the other mind is isolated by definition, and hence could not be confronted. Unfortunately this contradiction would apply to all merely verifiable truth. Since it is not yet verified it is isolated from the knower by definition. Hence it would be a contradiction to say that it is verified and not isolated. But confrontation is not a subtraction from being, but only an addition to it. All the contents of another's mind are subject to logical verifiability. In spite of the fact that the logical positivists are empiricists and have escaped the influence of Kant's a-priorism, the trail of the serpent of Kant's subjectivity, with its correlative *ding-an-sich*, still affects them.

refer to facts beyond direct experience is at best only probable tautology, and not certain.

It is true that even mathematical inconsistency and entailment must usually be sought. This is the situation in all propositions of type IV which I called indirect entailments. Mathematical propositions must be completely developed or the inconsistencies and entailments will not be apparent. As ejective propositions usually or always include a plan of overt action which must be followed before the final consummatory verification takes place, so most mathematical propositions contain rules of what might be called mental action or operation, which must be followed until the concepts are sufficiently developed for an insight into their inconsistency or entailment. We must go far afield to find the jaguars in Mexico, but we may remain in our studies and develop the mathematical meanings. For example, in arithmetic, every number has a succeeding number and much must be done in order to convert indirect arithmetical propositions into direct mathematical propositions—the science of arithmetic will never be completed.

Truth in *ejective* and *communicative* propositions must be sought in connection with all relevant facts. When it is found it is *observational* and *reflective* truth. Similarly, *indirect entailment* must be sought in connection with all the relevant meanings and the truth when found is truth of *direct entailment*. Direct mathematical truth may be said to be verification; indirect mathematical truth may be said to be verifiability. Acquaintive truth verifies itself. Propositions of the lower horizontal division of Table I are verified by the corresponding propositions of the upper horizontal division.

We have arrived at a theory of truth which is correspondence analyzed and generalized, pragmatism generalized, and coherence generalized—the confluence of the three theories. Mathematical truth is included since all mathematics is a huge tautology and mathematical falsity is contradiction. Truths of acquaintance are included since they are the limiting cases of identity. In these there is a movement of attention within the given, the predicate does not, so to speak, step out of the given. Here we have only truth, no falsity is possible.[33] The truths of direct insight of the intuition-

[33] An instance of falsity would be, *per impossibile*, the perception of something, directly experienced, as round when it is actually square. G. E. Moore

ist theory take their place in the whole body of truth. All the theories of truth are in one way or another included except the adherence theory, which is left in outer darkness. This I am tempted to call an added slight verification of my view.

V. THE SYNOPTIC THEORY OF TRUTH

One more piece of analysis is necessary. We have seen that all falsity is contradiction. Now there is no contradiction in facts. This is exactly what the law of contradiction affirms. Contradiction is an object of reference—this is its only status. Contradiction is a meaning. It has no being, it is not an entity. There is thought of contradiction but there is no contradiction. Truth is identity, and identity also has no actual being. It is only the meaning of a thought. If we consider truth as a property of assertions, then truth may be defined positively as the property of asserting or describing either a fact or a meaning. This might seem to lead us to an idealistic conclusion, but such a conclusion is not the result of my argument. Not all contradictions are known. The original of contradiction and tautology is an insight of a confrontating mind, but propositions that are not verified are true or false only in the sense that they would be found tautologous or inconsistent if there were minds that could verify them.

There is another class of propositions that was mentioned in the first section, namely, conjunctive propositions. If A is a proposition and B is a proposition, we may make the proposition A and B. This 'and' has no ontological status outside the thought. We have seen previously that many relations of diversity are not actual. But diversity not only conjoins things *apart* but it *conjoins* things apart. Diversity involves conjunction. Obviously, conjunction is sometimes actual, as for example, relations of space and time and the blend of tones in a chord. Such an actual relation I shall call connection or a 'with' relation, as contrasted with mere conjunction or an 'and' relation. When I say 'this bamboo shoot is green' *and* 'Kuo Hsi painted a landscape', that is a true conjunctive proposi-

proposed, as a method of saving natural realism, that a directly experienced thing may be perceived to seem different from what it actually is. There is, however, no seeming of this sort which is not also a being. Moore attempted to save naive realism by a piece of sophisticated nonsense. That it was nonsense Moore obviously suspected. See "Some Judgments of Perception", in *Proc. Aris. Soc. New Series,* XIX.

tion, but the 'and' does not mean an actual connection. That is the fallacy of Bradley's argument for monism.[34] The illustration I have just given is trivial, but there are others that are important. All statements of laws and uniformities are conjunctive propositions. Further, in a concatenistic universe, A is before B, and B is before C, and C is before D; but A has no actual relation to D. It is not *actually* before D. When I say that A is before D all I mean is the aggregate of the above three propositions; I mean a conjunctive proposition. Even in this case falsity is a contradiction. A positive conjunctive proposition is false only when one of its components is false, and a negative conjunctive proposition is false only when all of its components are true. The truth of a conjunctive proposition is the absence of such a contradiction. The conjunctive proposition, however, illustrates clearly the nature of truth and falsity. Truth and falsity are the work of a constructive mind.

In acquaintance our minds play in the given; we observe the presented facts and find our observations tautologous or contradictory; we construct fields of meaning or significance which go beyond the data, and discriminate the tautologies from the contradictions in the field; then we seek and sometimes find such further facts and meanings that we may verify positively or negatively the tautologies between them and the relevant meanings in the previous fields; finally we make use of indirect tests of the probable tautologies and inconsistencies that would result if we could attain still further facts and meanings that remain inaccessible.

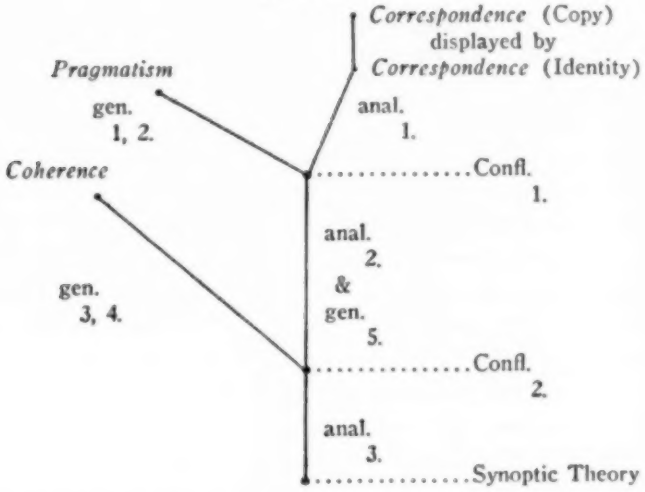
The nature of truth may be expressed as a generalization of any one of our three original theories, since the three are confluent. The original of truth is a known identity of fact and meaning, or of meaning and meaning; a known tautology; a verification. The widest meaning of truth is what would be a known identity if the data were complete; what would be a known tautology if the data were complete; a logical verifiability. We say, of course, that verifiable or potential truth 'is' truth in the universe of discourse. It is actualized, however, only in verification.

To which of the original three theories is our confluent theory the nearest? The relationship between the three theories can be

[34] This whole matter is discussed fully in "Possibility and Pluralism", 218-23.

shown by a diagram which will also summarize my procedure and result:

TABLE III



Generalization (1) is an extension of pragmatic truth from the process of verification to the consummations of observational and acquaintive truth. Generalization (2) is the extension of pragmatic truth to logical verifiability.

Generalization (3) is an extension of coherent truth to include all relevant facts. Generalization (4) is an extension of coherent truth from known to unknown consistencies.

Analysis (1) reveals, first, identity as the absence of diversity, and, second, diversity as not always actual but holding sometimes only in the universe of discourse. The analysis shows, third, that the diversity of falsity is actual only in a confronting mind. Analysis (2) exhibits the diversity of falsity as a contradiction and the identity of truth as tautology. Generalization (5) is an extension of the confluent pragmatic-correspondence truth to cover all cases of tautology, and also an extension of the meaning of the words verification and verifiability to instances of entailment. Analysis (3) exhibits the entire meaning of truth and falsity as the construction of a synoptic mind, controlled, however, in empirical truth by the facts.

I will now go back to the question of the affinity of the confluent

theory to the three theories with which we started. At different times I have thought it nearest to each one. I first arrived at this view by analysis of the correspondence theory, and until the analysis was completed had no thought of generalizing either of the other views. At this point the likeness to the coherence view was at once apparent. Although there are almost as many steps from the correspondence source to the final theory as from either of the two other views all the steps but one are analyses and the last generalization almost makes itself. The final result, however, is very far from the spirit of the original correspondence view.

Since all truth is tautology and all falsity contradiction the final view seems formally to be nearest to the coherence theory.[35] Further, it may be reached from the coherence theory with the smallest number of modifications. In its inclusion of mathematical truth it is nearest to the coherence theory since there is no provision for such truth in the other original theories. It is, however, far from the acceptance by the coherence theory of the presentation of all truth as a coherent whole to an Absolute Mind, far from Spinoza or Hegel, Bradley or Bosanquet; it is also far from the *a priori* categories of Kant, and far from his subjectivism. The two generalizations of the coherence theory were violent wrenches from the spirit of the theory.

The first generalization of pragmatism is an inevitable one, since confrontation is the consummation of verification, and the fifth generalization to truths of mathematics is natural since James, in a sense, had included these truths under the guise of 'facts'. One must bear in mind that the correspondence and coherence views had undergone long development and that any new theory is subject to human infirmity, even with such original thinkers as James and Dewey. The second generalization of pragmatism from what I called psychological verifiability in the future to the logical verifiability of inaccessible regions of time or space or mind seems far from the spirit of pragmatism as stated by its founders. We must remember, however, that James was a realist and believed in a material world which is not, in part, open to direct experience and

[35] This was my opinion at the time I read the paper. The critic of the paper, Professor Hoernlé, maintained that it is the coherence theory. Incidentally, two pragmatists have said the theory is pragmatism, and another philosopher has told me it is the correspondence theory.

he also accepted the truth of memory, including the memory of the funded truth of the past. A complete pragmatism must look before as well as after, otherwise we should never know that we have verified what was once a prediction; and we should never be able to say, at the consummation of verification, 'this is what I meant'. Historically, it was James and Dewey who awakened epistemology from its dogmatic slumber and it was they who pointed out clearly the unsatisfactoriness of a saltatory or transcendent truth left somehow dangling by itself.[36] It was James who made the most vehement attack upon the doctrine of an all-inclusive knower. It was also James who led the movement against both the truth and the importance of the system of Kant.

Probably the view which I have now reached is as near to the correspondence view as to the coherence theory and at least as near to pragmatism as it is to the correspondence view. Truth is certainly two-fold; it is first a matter of immediate insight and second a matter of reference beyond direct experience. The simplest words to use for the two kinds of truth are 'verification' and 'verifiability', both words, however, used with their generalized meanings. The second generalization is crucial, the 'verifiability' is logical verifiability. If the word 'pragmatism' is to be retained we should name the final theory 'generalized pragmatism'.

It will be advantageous to examine the spirit of our three original theories in their relations to larger movements of philosophic thought. I shall consider first, methodology; second, metaphysics; and third, the epistemological distinction between the actual and the possible, between the realm of facts and the realm of meanings.

First, *methodology*. The correspondence theory is the view of common sense. It is fitting that the theory should have been mainly the work of Aristotle—the only notion of truth to be developed in ancient philosophy. It involves a mysterious harmony between thought and things. It goes best with a theological philosophy—the philosophy of Aristotle, the Scholastics, Descartes, Leibniz,

[36] I could never quite understand Dewey's objection to epistemology, since the pragmatism of James and Dewey is a most notable contribution to the subject. The objection seems to consist in Dewey's calling all theories but his own, epistemology, so his theory must go under another name. As a matter of fact, Dewey's epistemology is his greatest contribution to philosophy. He rescued pragmatism from the absurdities of pseudo-pragmatism and made it a theory of the first importance under his new name, 'Instrumentalism'.

Berkeley. Knowledge of the truth is a revelation. The coherence theory is essentially a deductive theory. It seems inevitable that it should have arisen in the mathematical philosophy of the seventeenth century. It was originated by Spinoza, developed by the Newtonian Kant, and elaborated by Hegel (in the latter a bizarre deduction). It remained for the late nineteenth and the twentieth centuries, for Peirce and James and Dewey, to bring forth pragmatism. Pragmatism is essentially inductive; it formulates the method of the natural sciences.

Second, *metaphysics.* The correspondence theory is the natural theory of extreme pluralism and its relatively consistent formulation in monadism. The coherence theory is the natural theory of the monism of an all-inclusive knower. Pragmatism is the natural philosophy of concatenism, the new and moderate pluralism of James and his successors. In the correspondence theory truth is 'saltatory' (James's word); in pragmatism it is 'ambulatory' (again James's word); in the coherence theory it is ruminatory.

Third, *epistemology:* the actual and the possible. In the correspondence theory ordinary truth is potential, it is only possible. In the coherence theory all truth is actual and nothing is merely possible. In pragmatism, the original of truth is actual—verification; but truth extends by generalization to the possible—verifiability. Pragmatism begins with actual processes but its truth extends to the possible when the actual processes are arrested. Pragmatism has its feet on the ground but its face is turned toward the stars.

In all these ways the philosophy of the writer is consonant with pragmatism's natural allies.[37] As a result of the foregoing discussion I conclude that my confluent theory of truth is more akin to pragmatism than to either of the rival views. I might call it 'generalized pragmatism'. The question, however, remains, whether I should call it pragmatism at all, whether the name 'pragmatism' should be retained.[38] The pragmatists have one and all insisted that the meaning of ideas is future and that truth consists in a

[37] On induction, see "Chance and Cosmogony", *Phil. Rev.*, XLI, 1932, 147-160. On concatenism, see a paper by the writer entitled "Concatenism", *Jour. of Phil.*, XXXIV, 1937, 337-354. On the actual and the possible see "Possibility and Pluralism", *University of California Publications in Philosophy*, XVI, 201-218.

[38] Russell once called pragmatism 'Trans-Atlantic Truth'. I might call my view 'Pacific Truth'.

future process. Dewey, the most consistent of the pragmatists, has insistently held that truth is the verification or verifiability of a prediction. My second generalization of a logically possible direct verification of factually inaccessible regions of space and time and other minds, a logically possible but factually impossible verification of memory and historical fact, involves a profound change in the spirit of pragmatism in its classical formulation.

The theory that has resulted from our analyses and generalizations is empirical but it is something more than pragmatic. It faces the past as well as the future. After all, it is the confluence of diverse theories. As against the correspondence theory, with its transcendent truth, it holds that there is no truth that 'transcends' actual and possible experience—in the widest sense, however, of possible experience. It agrees with both the coherence view and pragmatism that all truth is 'immanent' in actual and possible experience. It includes the consistency of meaning with meaning, of the coherence theory, and the consistency of meaning with fact, of pragmatism. Falsity is the contradiction of meaning with meaning or of meaning with fact; truth is consistency of meaning with meaning or of meaning with fact. Consistency or tautology entails the absence of contradiction; and contradiction is the meaning of a mind that plays between meanings and meanings, or between meanings and facts. Truth and falsity involve the seeing-together of meaning with meaning, or of meaning with fact. In their creation the mind exhibits an insight. Some of this insight is actual, the rest is possible. I shall call my theory the synoptic theory of truth.

WILLIAM SAVERY

THE UNIVERSITY OF WASHINGTON

HUSSERL'S CONCEPTION OF LOGIC AS *KUNSTLEHRE* IN THE *LOGISCHE UNTERSUCHUNGEN*

I

THE view is generally maintained that logic is a normative science, for its function is to provide norms for correct thinking or validation. Kant, for example, defined logic in the following terms: "It is a science of the right use of the understanding and the reason generally, not subjectively, that is, not according to empirical (psychological) principles as to how the understanding actually thinks, but objectively, that is, according to *a priori* principles, *as to how it ought to think.*"[1] Keynes declares that "as thus defined, logic has in view an ideal: it is concerned fundamentally with how we ought to think, and only indirectly and as a means to an end with how we actually think. It may accordingly be described as a normative or regulative science."[2]

While Husserl's position is that logic is a *Kunstlehre* and cannot properly be characterized as exclusively theoretical or normative, he none-the-less considers the question of the applicability of the latter term as significant, and his treatment of this question serves as a useful introduction to his positive contribution.

Is logic normative or theoretic? In order properly to consider this problem, it is necessary first to ask: What is it that logic investigates? What does logic try to understand? What does it attempt to explain or clarify which cannot be done as well by any other of the special sciences?

A. *What subject-matter does logic investigate?*—If any science is examined, says Husserl, one notices that it aims to state the truth concerning the objects it investigates, and the truth of each science is limited by the objects which the science investigates. Physics, for example, states the truth about the physical world; chemistry, the truth about chemical changes and substance; biology, the truth about biological objects. The truth, therefore, is different for each science; nevertheless, one observes that each science employs a set of standards or criteria which is the common possession

[1] Kant, Immanuel, *Introduction to Logic,* Longmans, 1885, p. 6 (Italics mine).
[2] Keynes, J. M., *Formal Logic,* Macmillan, 1906, p. 1.

of all sciences. By means of these standards, a science is able to determine whether its judgments are true, whether the derivation of certain conclusions from the judgments is justified. These standards, or laws of inference, however, are not indigenous to each of the sciences, in the sense that they have been subject to critical investigation by each of them. Rather, it may be said that they have been accepted implicitly as part of the equipment and methodology of each science, in that they have helped the specialist in the successful solution of his problems.[3] But the fact that scientists have generally accepted such first principles uncritically, shows that the special sciences are not completely clear or even adequate disciplines.[4] These first principles, standards or norms, then, themselves require scientific examination.

Metaphysics, says Husserl, as one of the philosophical sciences, undoubtedly attempts this examination or criticism, but it limits itself entirely to the examination of the postulates of the real or existential world. But besides such postulates concerning the existential world, there are the postulates of the purely theoretical or ideal world, the postulates of the mathematical sciences, which have no direct existential import or reference.[5]

Husserl does not mean that the mathematical sciences have no application to the existential world; that would be to dispute the obvious facts—the use of mathematics in physics, chemistry, biology and even sociology. What he does mean is that the postulates of pure mathematical sciences make no assertions concerning the existence of their entities in the spatial-temporal world. The science, therefore, which would examine the standards or first principles of both the existential and the theoretical sciences cannot be metaphysics. It needs to be a science of science, a *Wissenschaftslehre*, a science which would examine the essential properties of all kinds of knowledge and provide the norms or standards of sciences and proofs.[6]

A *Wissenschaftslehre*, however, would not be necessary at all, says Husserl, if all knowledge were obtained through direct perception, or, to use Locke's term, intuition; if all the relations of things and properties were immediately transparent to the naked

[3] Husserl, E., *Logische Untersuchungen*, I, 2nd Ed., Halle, 1928 p. 10.
[4] *Op. cit.* 10. [5] *Op. cit.* 11. [6] *Op. cit.* 11-12.

senses. However, men are not like God in having the past, present and future spread out before their eyes like one huge and completely known picture. They lack even the ability of moving from one perceptual or intuitive level to another without wider and wider non-sensible gaps appearing, and these gaps must be filled in by a knowledge which is non-perceptual and entirely cognitive in character. The sciences include propositions which have no direct perceptual reference, and these cognitive propositions are more or less true insofar as they serve to bridge over the gaps between perceptual or intuitive islands.[7] How do they do this?

B. *Logic investigates structure.*—When one examines the sciences, he observes that their judgments, perceptual and cognitive, are not merely an aggregation or assembly of propositions, but constitute a logically ordered system. "Systematic connectivity" (*systematischer Zusammenhang*) is an essential characteristic of science, and without it, according to Husserl, science would not be scientific. Instead of a science you would have a collection of facts like an encyclopedia or a chemistry handbook.[8]

System, however, is not breathed into sciences by the generative spirit of man, as Kant would have us believe, but is something natively resident in things, a natural quiddity. Man finds system in things as he finds food in the plant and animal, and oxygen in the atmosphere.[8a]

Logicians have not considered system constitutive in science and in nature, because they confused the acts of knowledge (*Wissensakte*) with the contents of knowledge (*Sachverhalte*). Once, however, the act of knowledge is seen as a grasping, an understanding of the contents of knowledge, then it is obvious that the *Wissensakt* grasps, at the same time, the structure indigenous to the *Sachverhalt*.

That system is constitutive both in things and in science is, one might say, a fortunate state of affairs for man, whose intuitive faculties are sadly at fault; for system is the rock upon which proof is built. Our arguments or proofs, connecting perceptual island with perceptual island, must exhibit a certain given structure if they are to be considered true, and it is these structures or

[7] *Op. cit.* 16. [8] *Op. cit.* 14. [8a] *Op. cit.* 15.

relationships which logic or a *Wissenschaftslehre* investigates.[8b] The already existing sciences, which exemplify in considerable detail these structures or proofs, furnish the essential material for this investigation.[8c]

Logic is *a priori,* and this can be seen, according to Husserl, by an analysis of the significant traits of an argument. Every argument, in the first place, has a structure; in the second place, every argument seems fixed and determined in form and content; in the third place, these forms of argument appear in every science.[9] The existence of the same form or structure in each science is Husserl's ground for asserting that such forms or structures are not merely independent of all the sciences, but are *a priori* in character. The arguments, in order that they be true, must conform to these forms or structures. The laws which logic discovers to be *a priori* must hold true for all the sciences, and no science can exempt itself from the operation of these laws.

The central point in this discussion is that there are objects which logic investigates, regardless of whether these objects are considered empirical or *a priori;* and these objects are not ideal in the sense of the ought-to-be, but entities which are found or revealed by an analysis of the sciences themselves. These entities are: (1) the forms or structures of proof, and (2) the nature or properties of system or science.[10]

C. *Logic as normative and theoretical.*—Granted, then, that there are objects for logic to investigate, can it be said that logic is only a normative science concerned with what ought-to-be but not with what is? Husserl answers this question by declaring, in the first place, that this cannot be said. In the sense in which logicians have usually defined logic as normative, it may be said that every science is equally normative. When the two definitions from Kant and Keynes, quoted at the beginning of this paper, are examined, it will be seen that these thinkers have asserted logic to be normative only because it has an end in view, a purpose, an ideal. This character, Husserl maintains, in no sense distinguishes logic, for every science has a purpose, an end in view, and every science has

[8b] *Op. cit.* 16. [8c] *Op. cit.* 16-17. [9] *Op. cit.* 17-19.
[10] *Op. cit.* 25.

a purpose because it is a resultant of human activity and subserves human ends.[11] The ideal of every science is the truth about some special subject matter. That logic should have as its aim or ideal the discovery of the laws of valid proof and adequate science, therefore, makes logic no more and no less normative than is physics, whose aim is to discover the laws of physical matter. That the efforts of men to discover these logical laws have had their roots in the desire to think correctly, only proves how unsatisfactory it would be to separate in the sciences the normative from the ontological or theoretical. What special purpose would such a separation serve, particularly since the practical purpose or need is, in the case of logic, the binding force or chain of the science? Moreover, the science could not exist or be understood apart from the end which it subserves.

To speak, therefore, of the laws of logic as norms or standards for all logical or systematic thinking shows only that they are used for a purpose, that they are stated in such a way as to satisfy some practical need. But this is true of all the sciences, and it is especially obvious in the applied sciences, such as engineering or medicine, where the already established theoretical laws are used as norms for the building of bridges or the curing of disease. In the second place, says Husserl, every normative law must be based on a theoretical law. That the laws of logic cannot be merely norms, telling one how he ought to think in order to think correctly, but must be theoretical laws, in the proper sense of the term, is evidenced clearly by an examination of the relation of the *ought* to the *is*. The usual type of *ought* finds its expression in wishing or willing, but there are other types of *ought* which are not based on a wish or an act of volition. The judgment 'a soldier ought to be brave' is a judgment which has nothing to do with what one may wish or desire.[12] It is a judgment based upon an evaluation of the properties necessary for a good or bad soldier. It is a judgment, thus, which arises out of some criterion or principle of value, in terms of which objects subsumed under the judgment are classified or evaluated. Those who are bad soldiers, that is, cowardly soldiers, are excluded from the class of soldiers because they do not conform to the standard.

[11] *Op. cit.* 26. [12] *Op. cit.* 41.

Such normative judgments, however, would be meaningless if they were not already based on judgments which told one what *is*. The judgment 'a soldier ought to be brave', would mean nothing at all if it were not based upon the theoretical proposition, 'only a brave soldier is a good soldier', or 'only a soldier who is brave is a good soldier'. Every normative proposition, therefore, of the form, 'every A ought to be B', must include the theoretical proposition, 'only an A who is a B has the properties of C'.[13] Such a theoretical proposition naturally loses immediately its normative character, for it now tells us only what *is*. Nevertheless, should a theoretical proposition be used again as a basis for determining an action or indicating the only possible inferences, then it becomes normative. Normative judgments, therefore, are found in every theoretical science, because the scientist needs them to guide his work, only they play a subsidiary role. The same relation between normative and theoretical judgments obtains for the laws of logic. No logical normative judgment could possibly be meaningful if it were not a transformation, for practical ends, of a theoretical judgment. The normative proposition, 'for two propositions to be both true, they ought not to contradict each other', could not possibly be true or useful, if it were not based on the theoretical proposition, 'two contradictory propositions cannot both be true'. This proposition does not concern itself, at all, with the way we ought to think, but only states the truth that two contradictory judgments cannot both be true.

Even though the normative is inseparable from the theoretical, and even though the normative would have no meaning or significance for action, if the theoretical were not true, Husserl does not mean to imply that normative disciplines are indistinguishable from the theoretical, at least in terms of purpose. A theoretical science is entirely concerned with determining what *is;* and this need to know what *is* furnishes the propelling motive and passion. It is not to be doubted, in the least, as has already been pointed out, that the need to know what *is* may be rooted in a more immediate, personal or social need: to remove obstacles in the path of human desires. A normative science, on the other hand, transforms the knowledge of what *is*, into the ought-to-be, the *Seinssollen*, in order to tell us what factors must be present in a given

[13] *Op. cit.* 48.

situation for a human need or end really to be satisfied. A normative science, therefore, is guided by some fundamental principle or norm of valuation, which distinguishes between good and bad, the satisfactory and unsatisfactory.

By stating what *is*, the theoretical science provides the understanding with the knowledge without which the achievement of the normative end is impossible.[14]

It is to be borne in mind, however, that logic is no more purely normative than is physics. The discussion shows that logic, like any other science, can be either predominantly theoretical or predominantly normative, depending upon whether the aim is predominantly normative or predominantly theoretical.

D. *Logic as a Kunstlehre.*—Those thinkers, however, who have insisted that logic is purely normative, have been fumbling blindly towards an explanation of one peculiar characteristic of logic: that its laws are used as a guide for all forms of thinking and for the proper arrangement of the subject matter of various sciences. This peculiarity of logic has led many thinkers to call logic an art, a *Kunstlehre*. Whether logic should be considered an art, and not whether it is normative or theoretical, is the important question to Husserl. He considers those who have called logic an art to have been instinctively right, even though their definitions have been often marred by psychological prejudices. The reason he concerned himself with the question whether logic is normative or theoretical was only in order to resolve the obscurities surrounding the meaning of these terms and their interrelationship.

Logic, says Husserl, developed for practical reasons. Men wanted to know by what means they could obtain truth for practical purposes, and how to determine objectively when they really were in possession of the truth. Such knowledge became particularly important in Greek times, when all beliefs had to struggle against the attacks of scepticism and subjectivism. Historically, then, logic has been looked upon as a *Kunstlehre*.[15]

But it is to be noted that such an investigation for practical purposes might only have produced a normative logic, that is, a science which would tell one what conditions must be satisfied in order to have true judgments; but it would not be a *Kunstlehre*,

[14] *Op. cit.* 49. [15] *Op. cit.* 30.

since the means necessary to satisfy these conditions would not be at the disposal of men; for a normative science becomes a *Kunstlehre* only when the means exist for practical application of the norms.[15a]

Logic is a *Kunstlehre,* however, for it does state laws to establish norms and find means of applying these laws; and the existence and progress of the sciences are evidence of this. No science could exist which did not apply the various logical rules and methods, formal aids and props, discovered as a result of persistent investigation. Some who correctly considered logic a *Kunstlehre* were none-the-less too narrow in their view of its function. Some limited it as an art of correct thinking. But to define it as the art of correct thinking is to exclude from its definition the purpose or aim of scientific knowledge; for the aim of scientific knowledge is to gain knowledge, that is, science, and there is a world of difference between correct thought and true knowledge.

Briefly, then, it may be said that logic, for Husserl, is the art of discovering and applying those rules or laws by means of which the various sciences can be distinguished and built up.[16]

What is the importance to Husserl of the above analysis? What does he expect to obtain by it? There are three important results for him: (1) logic cannot be reduced to psychology by psychologizing logicians; (2) thus it becomes an independent discipline, analyzing and investigating its own particular subject-matter; and (3) in showing that logic is a *Kunstlehre,* he admits that certain parts of it are based upon human limitations, psychological factors. We shall discuss each in turn.

1. Those logicians, like Erdmann and Keynes, who have maintained that logic is an independent discipline, yet distinguished it from the theoretical sciences by describing it as purely normative, only played into the hands of psychologizing logicians. All norms, the psychologist points out, are dependent upon theoretical or ontological laws. No logical norm could possibly be useful for thought or science if it where not based on a law which told one what *is.* Now, if psychology describes the actual process of thinking, and logic tells us how to think, then it follows inevitably that logic must be based upon psychology. Logic, in reality, must be applied psychology. Obviously, says Husserl, there is no possible escape from

[15a] *Op. cit.* 45. [16] *Op. cit.* 29.

such an argument except by the means he suggests: by showing that logic is not only a normative but a theoretical science as well.

2. In showing that logic is both normative and theoretical, Husserl could validly put forward the claim that as a theoretical science logic could in no way be identified with psychology, since it must have a subject-matter which is not the subject-matter of psychology. The subject-matter of psychology, so far as it investigates thinking at all, is the actual thought-processes, but not the contents of these thought-processes and their logical interconnections. To psychology, the truth or falsity, the consistency or inconsistency of the thought-contents, are a matter of indifference. The distinction between the thought-processes and the thought-contents, nevertheless, is all-important for logic. Essentially, the failure to distinguish between the act and the content, the *Wissensakt* and the *Sachverhalt,* has been the basis for the inability to escape the logical shackles of psychology. But once this distinction is recognized, then it is obvious that the subject-matter of psychology is patently different from the subject-matter of logic; and the claims of psychology are ruled out of court on grounds of irrelevance and immateriality.

3. However, psychology is not entirely excluded from the realm of logic. There are parts of the methodology of the sciences which are created obviously to overcome psychological limitations. Methods of addition and subtraction, symbols representing abbreviated expressions of complicated processes, functional aids to memory and calculi by means of which conclusions are reached without thinking, can be explained only on the ground of human limitations.[17]

In insisting that logic is a *Kunstlehre,* Husserl makes room for such psychological data as are useful for the invention of time-saving and thought-saving devices. Methods of calculation, the proper choice of abbreviated expressions and of symbols, to shorten the labor of thought and to narrow the possibility of error, depend upon a knowledge, not merely of the laws of logic, but of the psychological and biological limitations of men. Men can only hold a limited number of arguments and facts in their minds. When matters become too complicated, rationality may stop entirely, unless ways are found to simplify the complex situation by special

[17] *Op. cit.* 164.

symbolic devices and modes of expression and calculation. Logic, as *Kunstlehre,* includes this as part of its task; and psychology, therefore, is exceedingly helpful in providing logic with a considerable knowledge concerning the capacities of the human mind.

II

So far the object of this paper has been to give an objective statement of Husserl's position concerning logic as a *Kunstlehre.* Now it is time to turn to an evaluation of his results.

A. *Sciences normative and theoretical.*—Husserl's clarification of the concept 'normative' is extremely important in removing the inconsistencies into which thinkers have fallen in classifying the sciences. It is important to have shown that every science, because it involves human activity, expresses, or, better, has a norm, a purpose, an ideal; for then, any attempt to distinguish the sciences into normative and theoretical can not be based on this supposition. No one who once realizes the truth of this can fail to see that much of the discussion which raged fiercely around this question was essentially futile. To have shown that the sciences are only properly classifiable in terms of the kind of use, end, or purpose to which they are put, is to set logic once more on its feet. Who can fail to see how simple the problem becomes? Is it the purpose to create standards in terms of which objects can be classified or ends achieved? Then the science is normative. Is the purpose to describe or explain the relationship and interconnection of things? Then the science is theoretical. Is the purpose to discover means to satisfy some practical end? Then the science becomes a *Kunstlehre.*

Once this is recognized, then it is easy to see that no science is purely one or the other. Propositions which are either practical, normative, or theoretical are to be found in every science. It is only a question of knowing what is the ultimate aim, the fundamental norm of the science, in order to know which of these types of propositions takes precedence over the others.

B. *Logic* as *Kunstlehre.*—Husserl has also done yeoman service in showing the logical dependence of the *Kunstlehre* on the normative and theoretical, and of the normative on the theoretical. To say that a *Kunstlehre* can only really be a *Kunstlehre* when its rules are based upon a normative and theoretical science, or that a

normative science can only formulate correct norms, when founded upon a theoretical science, seems the only scientific way to view the matter. Yet many thinkers still continue to believe that no art can be scientific; that a normative science is only a science in name, or in virtue of the fact that its subject-matter has been systematized; and that only the positive sciences are really sciences.

This attitude towards art has grown out of an identification of art with those art-products of literature, painting, and sculpture—the fine arts—where the individual talent, the peculiarity of personality, a certain kind of exceptional, non-reproducible skill, seem to be the whole fount and source of the art-product. In the evaluation of the fine art-product, emphasis is almost universally put upon its aesthetic value rather than on the ways in which it has been produced. Thus to the appreciator, it seems as though the art-product has risen out of an inexplicable soul. The attempt to formulate laws or to state modes of procedure for its production, therefore, seems a peculiarly futile business. Also the considerable changes in technique, and the ineffaceable individuality of expression, what one could call the 'personal touch', have seemed to remove art from the realm of the scientific. In short, the hope of formulating laws and rules for the production of masterpieces has seemed hopeless. The truth of this is, of course, indubitable. To hope to furnish rules for the production of the extraordinary, or, in other words, to reduce the extraordinary to the ordinary, is to entertain a contradiction *in adjecto;* for what makes the masterpiece extraordinary, is the simple fact that it is *not* ordinary, or—to say the same thing positively—it is superior to the ordinary product in terms of content, skill, originality, etc.; factors entirely dependent upon the personality alone. Not that laws are not discoverable which make possible the reduction of the extraordinary to the status of the ordinary; but when this happens, when certain results are no longer the product of a peculiarity of talent or genius, then these results are no longer taken as the hallmark of genius. When an art like that of making shoes is reduced to the mechanical, when the personal is completely removed, then the general superiority or perfection of the product over previous products is no longer considered a hallmark of anything unusual.

But an art, as an art, need not have as its end or aim, the formulation of rules by which the extraordinary can be achieved.

Its aim, its proper aim, should rather be the formulation of rules by which various effects can be obtained. How impressive the actual results may be is then dependent upon the individual. The greatness of a scientist, or, better, an artist in the field of science, is dependent entirely upon his individual capacities.[18] Nor does this exclude the discovery of new methods and rules or laws for attaining new results in the arts or sciences. All arts, when they concern themselves with the serious business of guiding artists, whether they be painters, carpenters, logicians, or physical scientists, must have for their ends the provision of rules and procedures by which certain results are assured. These rules or procedures are norms. That they are norms is the reason why an art, a *Kunstlehre,* is dependent upon a normative science. The value of these norms is determined, in every case, by their agreement or disagreement with fact, *i.e.,* theoretical propositions.

The unwillingness to suppose that any normative science has a scientific basis grows, in part, out of the false assumption that having a norm or standard, end or ideal, is the distinguishing characteristic of a normative science, and, in part, out of the realization that a norm can not tell one what is, but what ought to be. There is a third reason which deserves separate mention. Many norms, proposed by thinkers, have been found to be unrealizable, impossible of attainment. Therefore, they have appeared to be a matter purely of 'conventional' or 'arbitrary' choice, dependent for their origin and continued acceptance upon the pure imagination and feeling. There seems to be no objective basis for them at all. For example, the ideal or norm of traditional formal logic has come to seem to many thinkers to be not only arbitrary, but also unrealizable. Formal logic, they say correctly, can not provide an indubitable criterion of truth. How can one justifiably presume to think that truth, a truth inviolable and irrefutable, can be obtained by purely formal processes, when the same purely formal means can give falsehoods and laughable absurdities? Yet many thinkers still continue to follow the line of this deceptive ideal. Even though Husserl believes that indubitable truth can be obtained by purely formal means,[19] nevertheless, to have shown that a normative science is based on a theoretical one is a great service.

[18] Campbell, N., *Physics, the Elements,* Cambridge, 1920, 227-8.
[19] Husserl, E., *Formale und Transzendentale Logik,* 25, 27.

For, if a norm shows itself to be arbitrary and fantastic, *i.e.*, if results do not follow which are supposed to follow, then the theoretical proposition, upon which it is based, must be false. If the norms developed by logic for normative purposes do not really indicate the conditions which, if fulfilled, lead to true or probable conclusions, then the theoretical propositions upon which they are based must be false. If 'no two propositions ought to contradict each other', does not define the conditions which must obtain for true conclusions, then the theoretical proposition, 'no two contradictory propositions can both be true', must be false. And this is true of every science. If the norms, for instance, proposed by chemistry, for normative and *Kunstlehre* purposes, are not followed, when applied, by anticipated results, then the theoretical propositions, upon which they are based, must be false. If H and O, which ought to give water, when acted upon in a certain way, do not give water, then the theoretical proposition, 'H and O, when acted upon in a certain way, give water', is false. In this case, the truth of the theoretical proposition is so assured that when the result is not in accord with the norm, it is explained in other ways, *e.g.*, the failure of students to follow instructions.

C. *The 'Good' and the 'Normal'.*—Despite the useful work Husserl has done in clarifying the idea of a normative science, it does not appear to be quite adequate. Essentially, he asserts that a normative science recasts the theoretical to fit in with some fundamental norm of evaluation. Abstractly, this definition seems right. A normative science like medicine takes, as its norm, health. All the theoretical propositions of medicine, which are explanations or descriptions of both health and disease, are recast in order to state the conditions which must obtain in order that a human being remain healthy or return to health. But then Husserl explains more concretely, as already pointed out, that this evaluation is always in terms of good or bad, not in the moral sense, but in a more inclusive sense of being satisfactory or unsatisfactory. (The moral meaning of 'good' or 'bad' is simply a special case or species of the *genus* 'good' or 'bad'.) This conception of 'normative', which means that the fundamental norm of evaluation for medicine is of the type of proposition, 'Health is good', seems too narrow to include medicine.

This inadequacy will become clearer by using other examples of normative propositions: 'Water, under these conditions, ought to boil at 100 C'; 'persons who have once had scarlet fever, ought to be immune'. Propositions of this sort are not even discussed by Husserl, even though they are non-moral, having as little to do with morality as the proposition, 'A soldier ought to be brave'. While the latter can be translated into or shown to be based on the theoretical proposition, 'A brave soldier is a good soldier', this can not be done for the former propositions. Yet these propositions are like those of Husserl's own selection, in that they recognize occasions when the given conjunction of properties are not present, even though they ought to be. Also, they set up standards. These standards, however, are not the 'good' or 'bad', but rather the 'typical' or 'atypical', the 'normal' or 'abnormal'. Express these propositions in their theoretical form, and they state that 'water which boils at 100 C, under these conditions, is *normal* water', 'former scarlet fever patients who are immune are *typical* patients'. These are the proper translations. It would be impossible, in these cases, to substitute 'good' for 'normal' or 'typical' and make sense.

Husserl's too narrow conception of 'normative', therefore, excludes these types of propositions, and, along with them, a number of sciences like medicine. Medicine is a normative science in that it takes for its norm of evaluation health. Yet health is its norm, not because it is 'good', but because it is the 'normal' state of affairs. Theoretically expressed, its norm would take this form, 'health is the normal condition of the body'. If the same proposition, however, were made to conform to Husserl's formula, then it would have to read, 'health, as the normal condition of the body, is good', or 'health is both a normal and *good* condition of the body'. It is obvious that there is a wide difference in meaning between saying a state of affairs is 'normal', and saying that the same state of affairs is 'good', even though the meaning of 'good' is broadly interpreted. Some states of affairs may be normal yet not good. Poverty is a 'normal' state of affairs in our present order, as it was in Plato's and Kant's time, yet neither they nor we maintain it is 'good'. In this particular case, *i.e.*, medicine, to accept Husserl's formula is really to give the word 'good' a moral connotation, since to say 'health is good' is really to say it is *worth-*

while to maintain the normal state of the body. But medicine does not choose health as its norm because it is *worthwhile*, but because it is 'normal'. Medicine, therefore, is excluded from being a normative science, despite the fact that it seeks to determine those conditions which will ensure health, and not merely to discover the laws of both health and disease. The meaning, therefore, of a 'normative' science or of a 'norm of evaluation' must be widened to include other sciences which obviously are subsumed under the class.

A definition which seems able to include the above case and others is the following: a normative science seeks to define the conditions necessary to perpetuate one kind of existence to the exclusion of other kinds, investigated by a particular theoretical science. Thus medicine, as theoretical, investigates not only health but also disease; but as normative, it concerns itself with defining those conditions which will prevent ill-health and maintain health. Logic, as theoretical, concerns itself with those relations between propositions which produce both truth or falsity; but, as normative, it attempts to specify those conditions which must obtain in order to exclude falsity and error. In distinguishing, in this way, between the theoretical and the normative, not only the good and bad, but also all other kinds of polar distinctions—normal and abnormal, perfect and imperfect, beautiful and ugly, true and false, efficient and inefficient, useful and useless—it can serve as the foundation for a normative science. Of course, the normative science chooses only one of these poles. The theoretical science assumes the polarity as its norm, since it tries to describe what is. But this does not exclude a theoretical science from being guided as well by a single pole, for example, truth. In so far as each science seeks truth and excludes error, it is normative. However, as Husserl points out, it is not the mere presence of other *Werthaltungen* which determines the theoretical or normative character of a science, but rather the predominant norm or purpose. Because every science is a human activity, these distinctions, when applied, can not be made absolute.[20]

RUBIN GOTESKY

LONG ISLAND UNIVERSITY

[20] Husserl, E., *Formale und Transzendentale Logik*, 28.

MEANING AND METHODOLOGY IN HELLENISTIC PHILOSOPHY

THE comparatively recent interest in the problem of meaning and semiotic has led to a reviewing of the history of philosophy from a fresh point of view. Certain periods of western thought have been found to be characterized by this type of speculation: namely, the Hellenistic period of ancient philosophy; the fourteenth century of medieval philosophy; the seventeenth and eighteenth centuries with Hobbes, Locke, Condillac, and Leibniz; and the contemporary period with its manifold speculation in the fields of linguistics, psychology, sociology, anthropology, psychiatry and psychopathology, mathematics, and in philosophy in the fields of symbolic logic, phenomenology, with occasional attempts at the same analysis in aesthetics and epistemology. These semantic-conscious periods seem to be subsequent upon periods characterized by great systems, dogmatism in metaphysics, and realism in logic. Accordingly, the following periods tend to exhibit a critical attitude toward established tenets and to formulate a methodological enquiry with a resulting separation of the fields of philosophy according to an analysis of meaning.

The differences which characterize the various representatives of this movement are due at least in part to the several approaches to the problem. On the one hand, the scientific approach to the problems of philosophy is made from an interest in mathematics and formal enquiry. On the other hand, the essentially empirical point of view of the empirical sciences is reflected in philosophy. Thus, there are rationalists and empiricists interested in the problem of meaning and semiotic speculation.

Such a period was the Hellenistic period following upon the great systematic philosophies of Democritus, Plato, and Aristotle. Post-Aristotelian philosophy is distinctly 'modern' in flavor in that the Stoics, Epicureans, and Sceptics are concerned primarily with an analysis of meaning and the establishment of a scientific method as the propaedeutic to a philosophic system.

Since the ordinary material on the Stoics, Epicureans, and Sceptics is familiar, this paper will attempt to evaluate the contributions to the history of semiotic which are found in less known material;

the principal source for which is a treatise on Epicurean logic among the Herculanean papyri. The Περὶ Σημείων καὶ Σημειώσεων, or *De Signis*,[1] as it is called, has remained almost unknown to English readers in spite of its valuable material on logic and epistemology. This is one of the treatises of Philodemus, poet and philosopher of the first century B.C.[2]

The library of Philodemus at Herculaneum indicates the effort on the part of later Epicureanism to treat all the major fields of philosophy, broadening greatly the interests of the school in comparison with its earlier speculation.

The exchange of polemical writings between the Epicureans and other schools began with the beginning of Epicureanism and continued uninterruptedly down to the time of Philodemus. Many of the Herculanean papyri have a definite place in the history of this opposition. They carry it into other fields with works on rhetoric, mathematics, music, poetics, and logic. The Epicurean opponents are primarily the Stoics, although attacks are also made upon Xenophon, Plato, the Cynics, and the Peripatetics.

The greatest contribution to the history of philosophy of the Herculanean papyri lies perhaps in the field which Epicurus himself called Canonic, and which was subsequently broadened to include the general fields of logic and epistemology. The works on logic are not numerous; yet they are on the whole more significant than the more voluminous works on ethics, because they treat of a field which was previously little known. There are a few works on metaphysics, and even their significance, especially the work on the gods, is largely logical. The same is true to some degree of the works on rhetoric and aesthetics.

Epicurus' logic appears to be primarily destructive, rejecting the Aristotelian logic and putting very little in its place. The Epicureans, however, gradually developed a new logic, characterized

[1] Edited by T. Gomperz in his *Herkulanische Studien*, 1865.

[2] Aside from his works we know little about Philodemus himself. There are references to him in Cicero, Asconius, and Strabo as to his status as poet and philosopher. The Epicurean school at Naples is perhaps most famous for its influence on the Augustan literary figures, Virgil, Quintilius, Varius, and probably on Plotius and Horace. Philodemus studied under the famous Epicurean Zeno of Sidon at Athens in the first part of the first century B.C. It was at Athens where he came in contact with the Roman patron of arts, Piso, the enemy of Cicero, and became subsequently a member or founder of the school at Naples.

by a predominant emphasis on empiricism. It is not until the later period that this empiricism is found in its widest application to the various fields of philosophy; and its manifestation in the works of Philodemus and Demetrius Lacon[3] gives a new appreciation of Epicureanism and Greek empiricism.

1. *The Stoic position.*—The rationalists of the Hellenistic period belong to the Stoic school. Their contribution is not in the line of an empirical method, but in the formulation of a new approach to logic. Stoic logic is independent of the Aristotelian logic and is more akin to modern formal logic in certain respects. In the first place, logic is defined by the Stoics as a semiotic, a science of signs.[4] It is the science of signs and things signified according to Chrysippus. It includes grammar and language (since words are signs), epistemology, and a theory of perception, also based upon a theory of signs. Logic in the narrow sense, however, is limited to the analysis of concepts, the signified, which form the basis of propositions and syllogisms. The medieval division between conceptualists and nominalists is exhibited in the Stoic and Epicurean schools, respectively. The Stoics make a triadic division of the symbolic relation in connection with their analysis of what is true:

> . . . There are three factors joined to each other, the thing signified, the sign, and the object. Of these, the sign is the word, such as 'Dion'; the thing signified is the thing indicated by it, which we grasp in our concept of a co-existent reality, but which the barbarians do not understand although they hear the word; and the object, that which exists outside, as Dion himself. Two of these are material, the word and the object, and one immaterial, the thing signified, or the concept, which is true or false.[5]

In contrast with the Stoics, the Epicureans maintain that words refer not to concepts, but to things directly. In other words, they deny the triadic relation of the Stoics. The Epicureans stress the extensional, as opposed to the Stoic intensional, meaning of words, and maintain that words without extension belong to the realm of opinion and can make no contribution to knowledge. The only propositions which may be known to be true refer directly to objects of experience or are extensions from experience made through the method of analogy.

[3] Some of the Herculanean papyri are works of Demetrius.
[4] Diogenes Laertius VII 45. This is also the definition given by Locke and Peirce.
[5] Sextus Empiricus, *Adv. Math.* VIII 11, 12.

The shift of emphasis in Hellenistic philosophy from the relation of universal-particular to the relation of sign-signified is apparent in the metaphysical positions of the various schools. The dualism of importance in the Post-Aristotelian period is that between phenomena and noumena—the given and non-given. The methodological problem becomes one of establishing a method which will permit the inference of facts about the non-given through observation and reasoning on signs which are given.

Stoic methodology diverges from the Aristotelian in several significant respects. The Stoics are as strictly rationalistic as is Aristotle in his search for certainty and necessity in knowledge. The empirical or inductive side of the Aristotelian system they tend to neglect. Whereas Aristotle, however, refused to signs the ability to establish any certainty in knowledge, to the Stoics logic is only a semiotic, a system of signs. The Stoic logic differs in another important aspect from the Aristotelian in that it is centered about the hypothetical proposition rather than the categorical syllogism. This distinction is of importance in the analysis of signs and sign relations in the Stoic system. As the study of Stoic logic is the proper approach to their metaphysical system, we shall first consider 'sign' and 'signification' as these terms are used in their treatment of logical reasoning.

The sign in Aristotle is defined as "a proposition demonstratively necessary or probable".[6] In form the sign is an incomplete syllogism with one premiss lacking. Signs have varying degrees of validity in so far as they correspond to and are convertible into the first, second, or third figures of the syllogism proper. The sign can be said to be demonstratively necessary when it can be converted into the form of a valid syllogism of the first figure; that is, when a universal major premiss can be stated to make the inference from premiss to conclusion an analytic one. However, as the sign properly so-called is incomplete, since particulars only are stated and no universal premiss is presupposed, it cannot be regarded as demonstratively certain.

Similarly, the Stoics define the sign formally as "the proposition in a sound condition which is antecedent and reveals the conclusion".[7] Here the relation between sign and thing signified is ex-

[6] *Prior Analytics* II, 70a, 7-8. [7] S.E., *Adv. Math.* VII 245.

pressed in the form of a hypothetical proposition, 'If p, then q'. If such a relation holds, p may be said to be the sign of q.

The isolation of the hypothetical proposition indicates the emphasis on the necessary connection between concepts and propositions on the logical level, and between the parts of an interrelated deterministic whole on the metaphysical level. The shift in stress from the terms themselves in the categorical propositions and syllogisms of Aristotelian logic to the relation existing between the terms and the propositions, results in the recognition of the relation of necessary consequence (ἀκολουθία),[8] which allows for the inference from one proposition to another.

It is interesting to note that the Stoics found it necessary to distinguish a loose and a strict type of the relation of implication, which are analogous to material and strict implication of modern symbolic logic. The strict relation of ἀκολουθία seems to be an attempt to emphasize the intensional character in the relation (this is characteristic of Stoic rationalism in general), just as C. I. Lewis does in the case of his strict implication. In Stoic terms, the conclusion necessarily follows ("is deducible from" in Lewis's terms) the antecedent because of an internal connection existing between the concepts.

The definition of a sign as "the proposition in a sound condition which is antecedent and reveals the conclusion", involves first of all an analysis of the conditions for a sound hypothetical proposition. According to the first criterion the only unsound proposition is one in which the first term is true and the second false. This is also the only case in contemporary logic in which the relation of material implication between propositions does not hold. The Stoic table of sound propositions is as follows:[9]

1. If it is day it is light.—sound. The premiss is true and the conclusion is true.

2. If the earth flies, it has wings.—sound. The premiss is false and the conclusion is false.

3. If the earth exists, it flies.—unsound. The premiss is true and the conclusion is false.

4. If the earth flies, it exists.—sound. The premiss is false and the conclusion is true.

[8] S.E., *Pyrrhonic Hypotyposes*, B, 113.
[9] *Ibid.* 105.

The second criterion for a sound condition involves not the literal truth or falsity of the propositions concerned, but the nature of the relation or connection holding between them.[10] The argument is sound when the conclusion follows as a consequence of the "weaving together", or connection, of the premisses. The relation between the antecedent as the sign and the conclusion as the signified is one of necessary consequence, a connection based on ἔμφασις,[11] an analytic relation between the two parts of the proposition. The conclusion (the signified) is implicitly or potentially (δυνάμει) contained in the antecedent (the sign). This accounts for the necessary connection between them. According to the relation of συνάρτησις or ἀνασκευή, as it is called in the terminology of the later Stoics, the sign and signified are so connected that the contradiction of the conclusion, or the signified (the thing-in-itself in epistemological terms), involves the contradiction of the antecedent or sign (the apparent object).

For purposes of epistemology, the metaphysical status of the thing signified makes a difference in the inference. Beings or things (πράγματα) are divided into two classes of the given (πρόδηλα), and the non-given (ἄδηλα). The given as apprehended immediately and by itself needs no signs. Signs, however, are necessary in inferring the non-given. The non-given are divided into three classes:[12]

1. τὰ καθάπαξ ἄδηλα—the altogether or completely non-given, as the number of stars. This class of objects is forever incomprehensible and unknowable due to our human finitude and the great scope of the object. Accordingly, there can be no signs of these objects.

2. τὰ πρὸς καιρὸν ἄδηλα—the class of objects which are obscure at the time, that is, accidentally obscure because of attendant circumstances. The example cited is that of smoke signifying fire. This type of relationship, designated by Sextus Empiricus as that of the admonitive sign, in contrast with the indicative sign, is based on the experience of constant conjunction of certain objects. As both sign and signified are appearances, the validity of the inference is easily verified.

3. τὰ φύσει ἄδηλα—things which are obscure by nature and must be known by means of other things which are apparent. These form the class of objects signified by the indicative sign, which by its very nature points out or reveals them. The relation between sign and signified is a natural and necessary one. For example, the imperceptible pores of the skin are known through the flowing of perspiration, which serves

[10] *Ibid.* 113. [11] *Ibid.* 112. [12] *Ibid.* 97-103.

as the indicative sign. The indicative sign can claim necessity only on the Stoic assumption of a necessary connection between certain objects, such that one can serve as the distinguishing sign of the other.

The Stoic position in methodology becomes clearest in contrast with the opposing view of the Epicureans. With this by way of general introduction to the Stoic position as found in Chrysippus and Sextus, we may turn to the account of the rationalistic point of view of the later Stoa as expressed by its Epicurean critic Philodemus.

2. *The Epicurean position.*—By way of introduction to Philodemus' treatise a discussion of the general Epicurean position is necessary. The Epicureans from Epicurus their founder had always been the radical empiricists of Greek philosophy, in contrast with the predominant rationalism and idealism of the Stoic school. Furthermore, as their nominalistic successors, the Epicurean school was primarily concerned with problems of logic and methodology, contrary to the prevalent belief that they were not so inclined. The criterion of truth for the Epicureans lies in the senses. Furthermore, sense experience is the ultimate check and test of all hypotheses which attempt to extend knowledge beyond the objects of immediate experience. As all perceptions are true, error is due to opinion which is added by the mind to the original perception. This involves a judgment on our part as to how the object perceived really is. In this process the mind adds to or abstracts from the original perception and thus alters it in some way.

Some objects are as they appear manifestly (ἐναργῆ). Others we are prevented from knowing as they are in themselves because of their minuteness or magnitude, or because they are viewed from a distance. These latter are ἄδηλα as far as our experience is concerned. Corresponding to the Stoic division, the Epicureans have a dual order of the given and non-given:[13]

1. ἐναργῆ—"those objects which are received involuntarily from sensation and feeling".

2. The ἄδηλα are divided into three classes:

A. τὰ φύσει ἄδηλα—"those objects which are not in the past, present, or future comprehensible, concerning which we are doomed to eternal ignorance". For example, it will never be known precisely whether the number of the stars is odd or even, not because the number is

[13] S.E., *Adv. Math.* VIII 316-20.

ἄδηλον in its nature, but because our human limitations prevent us from ever knowing it.

B. τὰ γένει ἄδηλα—objects which are by their own peculiar nature obscure to us. In this class are the atoms and the infinite void. Their existence as the explanation of both permanence and change in the universe was postulated on purely rational grounds by Leucippus and Democritus. Epicurus insists, however, in conformity with his empiricism, that they must be known by analogy with experience.

C. τὰ προσμένοντα—objects immediately beyond us, which are for the time being unknown or not clearly or completely known. These may be present or future objects.

The given objects are immediately present to us and offer no difficulty in verifying them. Judgments concerning them are verified directly and easily by reference to the object. However, when the object is ἄδηλον, obscure to us, the verification cannot be so direct or so certain. Here, too, the criterion is always ultimately the sensible fact, and the method is essentially the same, although less direct. There are two methods of considering the unknown according to its nature, that is, as belonging to the class of C objects or to the class of B objects. In the case of the third class of objects which are for the time being unknown as lying in the future or not completely known due to certain attendant circumstances in the present, the process is known as ἐπιμαρτύρησις or "verification".[14] If the judgment can be verified by actual experience, by the appearance of the object or fact as it was designated in the judgment, its truth is established. By admitting such a criterion, Epicurus has not departed from his strictly empirical point of view; yet he has extended his knowledge beyond his immediate experience and beyond present experience in general. Opinions according to this method are judged to be true when they are verified by the facts themselves in the present immediately, or by the appearance in the future of what was expected and predicted in the present judgment. Hypotheses may be made if they can be verified or supported by facts. But can we go still further? In other words, can our method be generalized so as to apply to objects that are not known by means of sense appearance—τὰ γένει ἄδηλα? This point is important because it involves the validity of the atoms and void, *i.e.*, Epicurean metaphysics. The method used here, ἡ οὐκ ἀντιμαρτύρησις,[15] is an indirect form of verification.

[14] S.E., *Adv. Math.* VII 212. [15] *Ibid.* 213-6.

Opinions or hypotheses about objects that are obscure by nature are true in so far as they do not conflict with known appearances or present opinions. The Epicureans posit the existence of a void although it is not directly experienceable. However, its existence does not conflict with any known facts and is indeed supported by the empirical fact of motion, which requires a void for its possibility.

Later Epicureanism shows even more clearly this empirical tradition. Philodemus' treatise *De Signis* presents the Stoic position in support of the *a priori,* rational nature of the sign relation in opposition to the Epicurean view of the sign and methodology as based entirely on experience. The Stoic position here presented does not differ radically from the position found in the logic of Chrysippus. Later Stoics must have contributed much in the way of dialectical support and systematization. The Stoic position is that the only valid process of inference is that of ἀνασκευή or contraposition. The distinction is first made between the general or common sign and the particular sign. The particular sign, which alone is valid, exists only when the unknown exists, and is indicative by its very nature of that which it signifies. The test of the particular or indicative sign is an *a priori* one. If the thing signified is denied, the sign is also. The common or general sign may be present on the existence of several signified objects, no one of which it can signify certainly.

The Epicurean position is that unless a constant relation between objects has first been established by experience, the Stoic *a priori* test is not possible. A relation of cause and effect is only learned from experience and is not determined *a priori.* The sign in this case is based on a method of analogy (ὁ κατὰ τὴν ὁμοιότητα τρόπος). The method is strictly empirical and based on the observation of similarities in our experience and upon certain constant conjunctions, from which we infer like similarities and conjunctions in the unknown.

3. *The Stoic criticism.*—The Epicurean method of analogy, the Stoics contend, breaks down if there are unique cases within our experience.[16] If experience is not completely uniform we cannot infer from what occurs in our experience to experience in general, or to realities beyond experience. If there are unique

[16] Philodemus, Cols. I; II; XV.

cases in our experience there might also be unique cases outside our experience which would destroy any analogy. For example, the magnet is the only rock which draws iron. The unknown might conceivably contain many such peculiarities. Our experience indicates pygmies and giants as deviations from the normal character of men, so the inference of the characteristics of people in the unknown regions is somewhat limited.

According to the Stoics, the argument from analogy is valid only in so far as it can be reduced to that of contraposition. The inference on the part of the Epicureans of the mortality of men in our experience should be stated as follows: "Since men are mortal in our experience, if there are men in other places similar to us in other respects, and in *mortality*, they are mortal."[17] This argument makes clear the insistence of the Stoics on an analytic relation for valid inference. As a consequence of the insistence on a relation of identity or at least partial inclusion, the analogical argument becomes valid only if the characteristics on which it is based belong to the essence and concept of man.

The Epicureans, the Stoics say, contradict their own method of analogy. Bodies in our experience are all destructible and have color; yet the atoms, which are also bodies, are considered to be indestructible and devoid of secondary qualities.[18]

The Stoics challenge the Epicureans again on their theory that the sun is as large as it appears. From empirical observation they must hold that: "Things that appear to move slowly either actually move slowly or are very large and far distant. We know that the sun does not move slowly, as it traverses the heavens from east to west during the day. Therefore, it is large and far distant from us."[19]

Furthermore, the basis that the Epicureans employ for their analogy is not clear. There are two possibilities, each of which offers difficulties:

A. If the completely alike (τὸ ἀπαραλλακτόν) is the basis of the analogy, the sign and signified (the appearance and the non-given) would be identical (differing only in number) and so not distinguishable.[20]

B. If the merely similar is the basis, the very difference and

[17] Cols. V; III 1-7. [18] Col. V 1-7. [19] Col. X 1-15.
[20] Col. XIX 30-33.

uniqueness of the non-given may be what destroys the analogy.[21]

No argument based on experience and the observation of a mere succession of similar occurrences or their constant conjunction can achieve the necessity and certainty required by the Stoic system. Connection, not conjunction, is necessary. The Epicureans hold that when nothing opposes or conflicts with their conclusions their analogy is valid.[22] How can we know that nothing already experienced, or yet to be experienced, in the future, contradicts or will contradict the present conclusions?

In summary, the Stoics hold that the Epicureans can find in their empiricism and process of induction no basis for inference from the given appearance to the large part of reality not immediately known:

1. It is impossible to examine all appearances, yet inadequate to examine only some. The unexamined may conceivably be the ones which should have an essential influence on the conclusion. Conclusions based on induction are always incomplete.

2. Physical conditions differ, and it is impossible to take all circumstances into consideration.[23]

3. If the basis of analogy is taken as the identical, the only difference is numerical. If the basis is only the similar, the conclusion is not reliable.

4. The unknown has certain peculiarities of its own which may destroy the analogy through similarity or likeness. Without the assumption of the uniformity of nature, inductive inference is not valid.

4. *The Epicurean answer.*—Philodemus presents the empirical side of the polemic. He contends that the Stoic method of inference, ὁ κατὰ τὴν ἀνασκευὴν τρόπος, is based upon the Epicurean method of analogy or induction, and derives its certainty from that basis. Our experience furnishes us with the best and only criterion for judging the non-given and unexperienced. On the basis of a general analogy with events and objects in our experience we can infer certain facts about the existence and characters of objects lying outside our experience. For example, we conclude from the mortality of all men in our experience to the mortality of all men everywhere. The argument is stated as follows: "Since men in

[21] Col. XIX 33-6. [22] Col. VIII 1-7. [23] Cols. XXV; XXVI.

our experience are mortal, wherever there are men, they are mortal."[24] The Stoic position, on the other hand, was that such an argument is valid only in so far as it rests on the rationalistic method of ἀνασκευή, in which the relation must be an analytic one to be necessary.

The Epicureans hold that the Stoic position rests ultimately on induction from experience, and that if the method of analogy has no necessity or compulsion, the Stoic inference has none. In the argument, 'If there is motion, there is void', the motion is taken as the sign of the void. The Stoic test is an *a priori* one: the denial of the thing signified (the void) results in the simultaneous denial of the sign (the motion). The Epicureans, on the other hand, hold that no such conclusion is possible from the *a priori* point of view until we find from observation that nowhere is there motion without void:

> Taking into consideration the accompanying circumstances of objects moved in our experience, we conclude that under these conditions all objects are moved, and in this way we infer that it is not possible to have motion without void.[25]

Thus the abstract principle of the Stoics can only be formulated after experience justifies it through an argument based on analogy. Therefore, the Epicureans conclude, the argument of contraposition can claim no certainty if analogy has none, as the latter is the source and ultimate criterion of the former.

Furthermore, the Stoics should distinguish two types of ἀνασκευή.[26] According to the first type, if the second term is denied by hypothesis, the first is also necessarily denied, as in the proposition, 'If there is motion, there is void'. Suppose we deny the void. The Stoic contention is that by the mere negation of it, the motion is also removed. On the other hand, there is another type of ἀνασκευή aside from this purely formal and rationalistic consideration. It is impossible to *conceive* of the first, motion, existing and being such as it is, without the second, the void, existing and being such as it is.[27] Take for example the statement, 'If Plato is a man, Socrates is a man'. If this is true, it becomes true that, 'If Socrates is not a man, neither is Plato a man'; not because of

[24] Col. IV 1-2.
[25] Col. XI, 30-40; Col. XII.
[26] Col. VIII 32-Col. IX 3.
[27] Col. XII 13-19.

the fact that if Socrates is denied, Plato is along with him, but because it is "inconceivable" (ἀδιανόητον) that Socrates be a man and Plato not a man.[28] Inconceivability is, however, an empirical criterion.[29] Something is always inconceivable in terms of our experience, and the argument of inconceivability is basically an analogical argument. Yet inconceivability is the only argument the rationalist has to fall back on. "Since men decapitated in our experience die and do not grow new heads, we infer that all men decapitated die everywhere."[30] It is *inconceivable* that they should not. For a valid analogy on the basis of experience the inference can be made only if there is nothing in experience or the facts of experience opposing such a conclusion. We cannot conclude from the re-growth of hair and nails that eyes and heads will grow again. The particular sign of the Stoics holds only that it is inconceivable for the given to be or to be such as it is, if the non-given does not exist. This inconceivability, however, rests solely on an empirical argument from analogy.

The chief objection on the part of the Stoics was that the argument of inference from analogy breaks down if there are unique cases in our experience, as there might also be such cases beyond our experience which would destroy the analogy.[31] Even one exception would destroy the analogy and weaken the induction. This fact the Epicureans are willing to admit. Breaks in the causal chain and absolutely unique and unpredictable events would certainly render inductive reasoning extremely ineffective except within a very narrow range. However, the Stoic position is not tenable, nor able to overthrow the status of empirical reasoning. The fact that a magnet is the only stone that will draw iron does not destroy the possibility of an analogy. The very distinguishing characteristic or pecularity of an object may become the basis for an analogy. If some magnets drew iron, and some did not, the argument would be invalid. However, if all magnets we know of draw iron without exception, we can legitimately conclude that it is a characteristic of all magnets wherever they are found to do this.

Similarly, nothing hinders the generalization that the square of 4 units always has its perimeter equal to its area, although it differs from all other squares in this respect.[32] Furthermore, we

[28] Col. XII 19-30. [29] Col. XII 30-40. [30] Col. XIII 8-12.
[31] Col. XV. [32] Col. XV, 13-35.

do experience a certain range of difference within our experience. We can expect similarly a range of difference to occur outside our experience.[33] Peculiarities are subject to the same test of experience as similarities. It is ridiculous to infer by means of a sign relation from the given to the existence of a characteristic of the unknown and in this inference contradict in any way the apparent facts of experience.[34]

The Epicureans realize the importance of the social factor in the verification process. The importance of the past is mentioned:[35] "Since we know from history that men in the past were born and died, and in the present we ourselves experience the birth and death of various persons, with no evidence to the contrary, we can conclude with certainty that all men are mortal." Then and only then does it become possible to make the rationalistic generalization: "Men as men are mortal."[36]

The Stoics charged the Epicureans with inconsistency in not attributing destructibility and secondary qualities to the atoms, when these qualities belong to all bodies in experience. Philodemus maintains that bodies are not essentially destructible, but only in that they "participate in a nature opposing and weaker than the corporeal."[37] This view seems to rest on the distinction between primary and secondary qualities made first by Democritus. Some distinction obviously has to be made between qualities that are constant in experience and those which are correspondingly inconstant and variable. Bodies in the dark have no color, yet as tangible they are certainly bodies.[38]

The argument forces Philodemus to state more specifically how he conceives the nature of the relation of signification between the known and the unknown; also what is the legitimate basis of the analogy and inference from the one to the other. The transition from any particular to any other is obviously not permissible. In a true analogy the transition is made from one class or particular to the class or particular which is most like it, when nothing opposes such an inference.[39] From the genus the inference may be made to the species directly under it, and in turn from one particular to the one bearing the most similarity to it. The con-

[33] Col. XVII 18-35. [34] Col. XV 25-8. [35] Col. XVI 35-8.
[36] Col. XVII 1-5. [37] Col. XVII 36-7; XVIII 1-2. [38] Col. XVIII 3-10.
[39] Col. XVIII; XIX.

clusion can be made with certainty only where the situation offers "no glimmer of the opposite".[40] The number of cases necessary for a valid inference varies with the situation. In some cases one instance may be a sufficient basis for the inference; in others, only a few observed instances. In still others many such are necessary for a conclusion which is considered merely highly probable. This problem is closely related to the previous one of the distinction between the properties of objects on the basis of the variability and constancy of such properties, and also upon the question as to the relevancy of purpose in effecting such a distinction.

The main issue between Stoics and Epicureans is the epistemological one. How can one legitimately, within an empirical theory of meaning and truth, and with a methodology based solely therein, infer from appearances to the unknown, from the experienced and given to the non-experienced and non-given?

Philodemus gives the answers made by Zeno of Sidon[41] to his opponents:

1. It is not necessary to examine all appearances, but in many similar and varying ones to find a common element, which is found to belong to the members of the same general class.[42] On the basis of this, the conclusion is made to other similar qualities.

2. There is a limit to the variations possible. Although we recognize a range of variation in food, atmospheric conditions, and other factors in the physical environment, there is a limit to this variation. For example, although within our experience men are found to vary greatly, yet we cannot go so far as to conceive of men existing who are made of iron, and are able to go through walls as we go through air.[43]

3. Both the completely alike or identical and the similar may be the basis of inference by means of signs. Inference may be made on the basis of the completely alike when there is a difference of accompanying circumstances.[44] The merely similar may be the basis when a common quality has been observed in a number of cases by means of induction.

4. It is necessary to distinguish between essential and accidental qualities of objects. Even if accidental qualities are particular and

[40] Col. XVIII 29-31.
[41] Zeno of Sidon was an Epicurean scholarch of the early first century B.C. He was one of Cicero's teachers as well as Philodemus'.
[42] Col. XX 35-40. [43] Col. XXI 36-8; XXII 1-2. [44] Col. XXII 3-6.

peculiar, an analogy is still possible on the basis of certain essential characteristics of objects. For example, a more certain inference can be based on the mortality of all men than on their length of life.

5. Furthermore, a distinction must be made between absolute and relative analogies. Some may be considered general and unchanging, others always relative.[45] General and constant analogies may be established for the action of certain poisons. Only relative analogies, however, may be established for foods. No one can argue on the basis of the color, odor, or taste of a food to the goodness or badness of it, as these qualities may conceal quite different powers in the unknown object.[46] Again the range of deviation is limited. We could never go so far as to conclude that there might be men eating coals and digesting them.

The empirical method does not restrict us to our personal and individual experiences. Those who have not been to Sicily, for example, do not doubt its existence.[47] We accept the testimony of others and of books as long as no present appearances or previously demonstrated facts conflict with such testimony.[48]

Necessity is built up from the observation of constant conjunction. Since we have never seen smoke without fire, nor motion without empty space, we say that smoke is the sign of fire, motion of void.[49] This is the basis of the causal connection. The establishment of a system of *a priori* logical necessity, such as the Stoics posit, is subsequent to this recognition of sequences on the empirical level. After the fact has been observed as such, the Stoic rationalistic test is applicable. If the second term is denied, the first is also, and the relation of necessity in the consequence of the ἄδηλον on the πρόδηλον is confirmed. When experience has shown that constant conjunctions and similarities occur, the Stoic hypothetical proposition expressing the necessary connection of two terms may be stated as follows: "If the second is denied, the first is also."[50] Hypotheses on the logical and theoretical level are formed on the basis of information about connections of terms given by the observation of sense experience. The validity of these hypotheses, accordingly, is dependent upon their correspondence

[45] Col. XXV 30-9. [46] Col. XXVI 1-9.
[47] *Cf.* Galen, *Subfiguratio Empirica*, Ch. viii.
[48] Col. XXXII 19-27. [49] Col. XXXVI 1-7. [50] Col. XXXVII 32-6.

with facts and their adequacy in comprehending these facts, as well as on their internal coherence or consistency with each other.

5. *The Sceptical position.* Stoic rationalistic *a priori* method owes its formulation at least in part to the development of such a method in Mathematics.[51] Although we have no evidence for a corresponding relation between the Epicurean philosophy and empirical science, we do know that one empirical science, the medical science, did exert an influence on the method and materials of philosophy. At several points in the history of Greek philosophy medicine and philosophy merged: in Empedocles, Aristotle, and the Empirical Sceptics.[52] It seems probable, then, that the empirical method in philosophy owed a great deal to its success in the medical science of the time.

The aim of Hippocrates as early as the fifth century B.C. was to detach the medical science from religion and rational philosophy and to raise it from mere empiricism to the status of a positive science. In the Hippocratic treatise, *On Ancient Medicine,* a scientific methodology is established on the basis of the substitution of a relation between signs and things signified for the relation between causes and effects. "The riddle of the universe may remain unsolved, and yet physical science both can and ought to progress independently." The ability to predict successfully is the essence and justification of science. Prediction is based on data from our own experience, from the experience of others, and from the records of the past, all duly tested. We predict not from causes, but from signs. Medicine is a science of prediction from signs and as such is empirically grounded and controlled. On such a basis it nevertheless has working principles for the extension of scientific method to the future.

It is unfair to classify Sextus Empiricus as the culmination of scepticism. Such a designation neglects the fact that he is a medic by profession with the background of a positive, empirical science. The theory of signs in the eighth book of his work against the logicians[53] is the key to the position he holds in philosophy. In this discussion it is clear that a sceptical approach is only a means to the development of a positive empiricism. A rigorous polemic

[51] The Stoic arguments in *De Signis* are attributed to Dionysius of Cyrene, Stoic mathematician of the generation prior to Posidonius.
[52] Menodotus and Sextus Empiricus.
[53] S.E., *Adv. Math.* VIII 141-299.

against the indicative sign of the dogmatic philosophers, both Stoics and Epicureans, serves to emphasize the importance and validity of the admonitive sign, which has its basis within an empirical theory of meaning. The purpose is primarily epistemological, to determine the limits and legitimate objects of our enquiry and knowledge. However, as in the case of the English empiricists and Condillac, with similar orientation and purposes, the result is the affirmation of a phenomenalistic view with the accompanying limitation of metaphysical speculation.

We saw in the Stoic and Epicurean divisions of reality and in the corresponding classes of signs that some objects are obscure by nature, others obscure at the time, but of the same kind as the experienceable. According to Sextus, the first class of objects are known by the indicative sign, the second by the admonitive sign. The admonitive sign may be defined as "an object which, having been observed along with, or in conjunction with, another object, evidently at some time in the past, leads us to the memory or recollection of the object which accompanied it, now not evidently experienced". For example, we say that smoke is the sign of fire as we have observed by direct experience in the past the conjunction of smoke and fire on many occasions, so that now, on seeing the one, namely the smoke, we immediately recall the other, the fire, not itself visible.[54]

The indicative sign differs radically from the admonitive. It designates objects obscure by nature, that is, things-in-themselves, beyond phenomena. Such a sign relation cannot be constructed on the basis of experience, since the object is not experienced and so is not capable of being observed along with anything that appears.[55] The indicative sign must be necessarily indicative of what it signifies and known *a priori* and apart from experience. Sextus proceeds to show the difficulty and impossibility involved in a theory of indicative signs. The admonitive sign is valid since it has its basis in daily experience and is necessary for the development of any art or science, as the means of generalizing beyond the moment and the individual. The indicative sign, on the contrary, is fashioned by dogmatic pilosophers and rationalistic physicians to furnish to them evidence of the nature of things-in-themselves. He admits the validity of the admonitive sign, which life

[54] *Ibid.* 152. [55] *Ibid.* 154.

requires, but he rejects the indicative sign, which is falsely assumed to reveal things obscure, as contrary to experience and meaningless.

The bulk of the Sceptic attack is centered on the *a priori* sign of the Stoic school. The Stoics are right in so far as they hold that all *a priori* truths are analytic. However, for Sextus such truth is not inference. Inference requires the statement of a new fact not already contained in the premisses; in other words, a synthetic relation between premisses and conclusion. The Stoic position was that certain synthetic truths can be established *a priori* and thus have the necessity attaching to analytic truths. This is essentially the status of signs for them. The Sceptic argument amounts to the denial of *a priori* synthetic judgments; and to the assertion that the Stoics must choose between *a priori* necessity which accrues only to analytic truths, and *a posteriori* contingency and probability.[56]

A further criticism which Sextus has to proffer against the Stoic definition of the sign as a proposition and semiotic as dialectic is that the Stoics thus limit signification to the formal level exclusively.[57] This restriction would eliminate a large part of the field of symbolism. On the human level, there is the practical use of signs by the farmer and the seaman, who are unversed in dialectic. Farmers and seamen do not rely on an absolutely necessary science, but upon signs which indicate to them what to expect in the future on the basis of their past experience. Furthermore, Sextus would not exclude the use of signs from the animal level. Animals use signs although they are incapable of forming propositions.

The similarity of position of the later Epicurean school of Philodemus and that of Sextus and the empirical physicians is apparent from this brief discussion. The method of analogy which Philodemus expounds is essentially the same as that of the medics as explained by Galen.[58] Although the earlier Epicureans were subject to the Sceptic criticism that within an empirical theory of meaning and method the Epicurean metaphysics was untenable, the criticism is not so obvious of Philodemus' position. It is clear from his treatise that he has attempted to formulate his metaphysics on empirical grounds.

[56] *Ibid.* 252-68. [57] *Ibid.* 269-71.
[58] Galen, *Subfiguratio Empirica*, Ch. ix.

The parallelism between Greek empiricism and English empiricism is evident in both method and results. In addition, the empirical scepticism of Sextus shows a striking similarity to the contemporary positivistic movement. The positivist recognizes the impossibility of gaining absolute knowledge of things, gives up the search for the origin and destiny of the universe and the inner causes of phenomena, and restricts himself to phenomena and the observation of their laws of succession. Science is limited to the systematic coördination of phenomena and the knowledge of their uniformities, which are termed laws. Sextus does not limit himself to the mere observation of phenomena, but attempts, in accordance with his profession, to formulate some general rules. Laws are generalized facts, formulated on the basis of the method of inference from similar to similar (ἡ τοῦ ὁμοίου μετάβασις).[59] The general principles of science result from the association of phenomena and the extension of the method beyond immediate experience. Thus, in the constant reproduction of the same series of phenomena the Greek empiricists find the means of foreseeing the return of an event, and an empirical equivalent for the principle of causation.

The Hellenistic period, of course, lacks much in the way of an adequate treatment of all the issues involved in empiricism and induction. A complete recognition of the significance for metaphysics and knowledge of the elaboration of an empirical theory of meaning is not to be found at this early date. This was probably the result of an insufficient analysis of what the given and experience involve. This in turn was due to a large extent to the lack of scientific data. The social factor in knowledge was not sufficiently considered. The assumption of a social experience and world seems to have been characteristic of the Greek mind, and accordingly, the relation between the individual and the social points of view was not considered. A recognition of the common and constant elements in a changing environment led the Epicureans and Sceptics to support in part what would today be called an objective relativism. The tendency in this direction is the result of a firm stress on an objective and realistic view along with the acceptance of an empirical method.

ESTELLE ALLEN DE LACY

PRINCETON, NEW JERSEY

[59] *Cf.* Galen, *Subfiguratio Empirica*, viii, ix.

DISCUSSION

A CRITICISM OF D. BIDNEY'S "SPINOZA AND WHITEHEAD"

AS a result of a survey of passages in the writings of Professor Whitehead, two of which are quoted at the beginning of his paper (574), Mr. Bidney is prepared to summarize one phase of Whitehead's position thus: "He [Whitehead] believes that some such *entity* as process, change, or becoming is the *ultimate reality* which serves as the bond of relation between the various events or occasions which emerge in time from the cosmic process".[1]

It is true that an examination of the two passages which Mr. Bidney mentions might be expected to lead one to suppose that Whitehead was espousing a Spinozistic Monism. However, reference to other statements, chiefly in *Process and Reality* and *Adventures of Ideas*, as well as an examination of the general tendency of his work, seem to indicate the fallaciousness of Mr. Bidney's interpretation.

In *Process and Reality* (31),[2] Whitehead, discussing the "Category of the Ultimate", refers to "Creativity" as *"The Universal of Universals characterizing* ultimate matter of fact". Thus, in broadly Platonic language, "Creativity" is an "idea" (essence or form) which is exemplified (present) in matters of fact (*i.e.*, particular Actual Entities). Conversely, the creative process, whereby one actual entity appropriates data provided by other actual entities, and so constitutes (or creates) itself, is an exemplification of the "form", "Creativity".

That Creativity (Process, Passage or Activity) is not "one fundamental substrate of which all things are modes"[3] is indicated by reference to *Adventures of Ideas* (303): "Each event, viewed in its separate individuality, *is a pasasge* between two ideal termini, namely, its components in their ideal disjunctive diversity passing into these same components in their concrete togetherness. . . . There is *nothing* in the universe other than *instances of this passage* (*i.e.*, actual entities) and components of these instances." In short, there is no creativity apart from actual entities. Creativity is a process of interaction (passage) between actual entities (events, occasions).

Indeed, this fact is indicated in one of the quotations on which Mr. Bidney places much weight (*Process and Reality* 10): "Spinoza's modes (actual entities) now become the sheer actualities . . . analysis does not lead us to *any higher grade of reality*". It is interesting to note, by way of contrast, Mr. Bidney's statement: "He [Whitehead]

[1] D. Bidney, "Spinoza and Whitehead", *Philosophical Review* XLV 583.
[2] All references are to the New York Macmillan Edition.
[3] Same as note 1.

believes that some such entity as process, change, or becoming is the ultimate reality". As a matter of fact Mr. Bidney, in expounding Whitehead's position, cannot legitimately apply the term "entity" to "Process". "The general activity is not an entity in the sense in which occasions and eternal objects are entities" (*Science and the Modern World* 220; Cambridge Edition).

It is further clear that Whitehead does not intend to posit some underlying substratum to account for "the bond of relation between various events". He states: "the process, or concrescence, of any one actual entity involves the other actual entities among its components. In this way the obvious solidarity of the world receives its explanation" (*Process and Reality* 10).

It may be asked with reference to this attempted correction of Mr. Bidney's interpretation of Whitehead's position (granted that there are passages in his works which support the view that "creativity" is not an entity or ultimate substrate)—What is to be done about the passages which he (Mr. Bidney) has quoted? There are for example the following: "In the analogy with Spinoza, his one substance is for me the one underlying activity of realization individualizing itself in an interlocked plurality of modes. . . . Each event is an individual matter of fact issuing from an individualisation of the substrate activity" (*Science and the Modern World,* 87, 88). There is also the statement: "The philosophy of organism is closely allied to Spinoza's scheme of thought" (*Process and Reality* 10).

Indeed, it seems that if these are to be taken literally, and as quoted, they imply that "Creativity" is to be regarded as an "ultimate substrate". It would appear, then, that Whitehead thinks of "Creativity" in two distinct and contrary senses. However, I believe that this conclusion can be denied on the basis of a more careful examination of the passages in question.

In *Process and Reality* the problem of Creativity is discussed in a more thoroughgoing fashion, than in *Science and the Modern World.* I shall refer first to the passage quoted from the former. Whitehead is discussing the "Incoherence" which certain philosophies manifest. He refers to Descartes, who posits two (three?) substances, although by definition there can be only one. Whitehead notes, with approval, Spinoza's reference to One Substance only. Like Spinoza, Whitehead posits only one sort of Metaphysical entity. *But this is as far as the similarity goes.* The one real Substance of Spinoza is replaced, in Whitehead's thought by *many,* real, dynamic actual entities (each of which exemplifies the Universal of Universals—"Creativity") ". . . the modes now become the sheer actualities—analysis of them . . . does not lead us to the discovery of any higher grade of reality" (*Process and Reality* 10).

With this, and the preceding discussion in mind, I think that it is

possible to grasp the meaning of the debatable passage in *Science and the Modern World* (87). The ultimately real, for Spinoza, is the one Substance, God. For Whitehead, the ultimately real things are actual entities. When he speaks of "each event as an individual matter of fact arising from an individualization of the substrate activity "creativity" (*Science and the Modern World* 87) and states that creativity is a "character which underlies all occasions" (*Ibid.* 220) he apparently means that the Universal (essence, principle) "Creativity" is exemplified (manifest, present) in particular actual entities (*i.e.*, in the process whereby actual entities are objectified in each other in the act of self-creation).

Another apparently troublesome phrase (also quoted by Mr. Bidney) referring to all actual entities as "the ultimate *creatures* derivative from the *creative process*" (*Process and Reality* 124) is seen, on examination, to imply Whitehead's basic doctrine that an actual entity is "*causa sui*". That is to say, the creative process referred to is the process by which an actual entity creates itself (*Process and Reality* 135). In this sense also, God may be referred to as a "creature" or "accident" of creativity. In other words, God arises through his own self-creative process. There is no external determination. In this sense his self-creation is an "accident".

Brief reference might well be made to some other misinterpretations of Whitehead's position. Mr. Bidney describes Whitehead as starting with infinite, indeterminate experience—faced with the problem of accounting for the origin of change and differentiation into finite modes (*Philosophical Review* XLV 587). In this "Potentiality"[4] an "urge" to realize itself arises.[5] In the next stage of development (according to Mr. Bidney) God is conceived not as a "substrate of events"[6] but is regarded as a purely "formal principle". Mr. Bidney claims that God as Primordial (formal) "*makes* the eternal objects and events (actual entities) grow together" (588). His use of the words 'emergent' and 'emerge' (583, 589) are unfortunate, since they further obscure the issue. Whitehead really seems to be saying that God does not exercise any ultimate control in the creation of actual entities, and that actual entities do not simply "emerge". Actual entities arise by a process of *self-creation* (*Process and Reality* 135—a passage to which Mr. Bidney refers). While it is true that in God's Primordial nature all Eternal Objects are organized in proper rele-

[4] Note that this is not Whitehead's usage of the term. He applies it to (A) the realm of Eternal Objects, present in God's Primordial nature; and (B) the "data" provided by actual entities for the self-creation of other Actual Entities (*Process and Reality* 101).

[5] According to Mr. Bidney; who yet paradoxically quotes a passage showing that the "urge" is present not in "creativity" but in God's Primordial nature.

[6] God was never so designated by Whitehead.

vance, yet those Eternal Objects which are actualized in a particular Actual Entity, are selected by that actual entity itself. Finally (according to Mr. Bidney) in "the fulness of time" God becomes actual. To his formal abstract nature are added concrete data from other actual entities.[7] It might be further noted that Mr. Bidney's usage of the term "consciousness" in describing God's Consequent Nature (590) is non-Whiteheadean. For Whitehead, "consciousness" arises in a situation, when relevant and irrelevant possibilities are considered with reference to a fact—*i.e.*, when fact is confronted with alternatives (*Process and Reality* 409). Finally, in opposition to Mr. Bidney's imputation of "no causal efficacy" to God (when actual),[8] it is to be recalled that God, as an actual entity, has as much causal efficacy as any other actual entity. That is to say that God provides "data" for the Physical Prehension of other actual entities, and his Primordial nature embodies the realm of possibilities (eternal objects) which provide a "lure" for newly arising actual entities.

The long paragraph just preceding is an attempt to indicate the fallaciousness of Mr. Bidney's effort to show that, in Whitehead's opinion, actuality arises from possibility by a temporal process.

It is to be noted that Whitehead *does not* intend his position to be interpreted in terms of a temporal sequence which "in the fullness of time" produces (an actual) God. He indicates explicitly and implicitly that the metaphysical ultimates: Eternal Objects (including "Creativity", the Universal of Universals) and Actual Entities (including God, *both* Primordial and Consequent) are *at all times present* in the Universe. "Metaphysics is nothing but the description of the generalities which apply to all the details of practice" (*Process and Reality* 19). This, of course, does not contradict Whitehead's claim that individual actual entities arise in the course of a temporal process of self-creation.

Thus in the opinion of the writer,[9] it is evident that Whitehead: (1) *does not* attempt "to derive the actual from the potential";[10] (2) is *not* trying "to combine a monistic metaphysics with a pluralistic theory of physics and biology". On the basis of a careful reading of relevant

[7] Mr. Bidney seems to forget that God is an actual entity, when he states that all God's consequent nature amounts to is the fact that "the boundless activity takes on a definite determinate character as the result of the self-creative function of the interrelated events" (590). In short, there is no reference to God as one actual event (entity), among other interrelated events (entities).

[8] Though as Primordial apparently God has causal efficacy since he "makes eternal objects and events grow together" (Bidney 588).

[9] See also the discussion of the "Ontological Principle" in *Process and Reality;* and in Miss D. Emmet's book *Whitehead's Philosophy of Organism.*

[10] See Mr. Bidney's summary of his (own) argument, pages 591-2.

Note: *Emphasis,* indicated by italics in quoted passages is not explicitly in the text. Words, within brackets, in quoted passages, have been added in an attempt to further clarify the meaning of these passages.

passages in Whitehead's recent books, I can see no reason why he is not justified in saying, "The philosophy of organism is pluralistic in contrast with Spinoza's monism" (*Process and Reality* 114).

ALLISON H. JOHNSON

UNIVERSITY OF WESTERN ONTARIO, LONDON, CANADA.

BASIC CONCEPTS IN THE THEORY OF PROBABILITY

I BELIEVE that the current theory of probability is defective in two ways. (1) It makes the metaphysical and epistemological assumption of a subjectivism such as that of Protagoras, and such as is implied by modern Pragmatism, depending for the validity of some of its conclusions upon this highly questionable assumption. (2) It either fails to define correctly or to distinguish clearly, most of the following basic concepts:—Probability, certainty, truth, knowledge, doubt (both quantitative and qualitative), belief, and conviction. These defects appear in the otherwise admirable paper by Dr. L. O. Kattsoff entitled "Modality and Probability", in the January 1937 number of this *Review*.

Let us consider his treatment of certainty, and note our grounds of objection. He regards certainty or 100 per cent probability as synonymous with truth. He describes probability as a scale of points intermediate between two truths, or between truth and falsehood (falsehood is just the truth of the contradictory). He calls probability a "coefficient of truth".[1] This would mean that as the probability or verification of a proposition gradually piled up, the proposition gradually approached truth, and only reached this point when the probability or verification reached 100 per cent. I shall argue that it is altogether incorrect to symbolize truth as the extreme of the probability scale. Truth and probability *are* scales. But they are two scales, not one. The truth scale has two points on it—*one* and *zero*, measuring truth and falsehood. The probability scale has, as Dr. Kattsoff says, an infinite number of points between its *one* and its *zero*, which two extremes actually stand, not for truth and falsehood, but for certainty of truth and certainty of falsehood, respectively. Since certainty of falsehood is also certainty of the truth of the contradictory, the two points really stand for two certainties of two truths.

The issue here is metaphysical and epistemological rather than logical. It is a matter of defining and distinguishing on the one hand, truth, and on the other, probability—certainty. I in part agree with Dr. Kattsoff that probability is a matter of verification. But it is more than that. And we must be more precise. And we can agree that certainty is 100 per cent probability. I believe, however, that Dr. Kattsoff holds an improper view of that most elusive concept, truth. I recognize

[1] *Philos. Rev.*, January 1937, pp. 81, 82.

the difficulty in clarifying the idea, but some sort of definition or description, at variance with his assumed meaning, must be attempted. I find no definition, not even my own, wholly satisfactory. Perhaps truth is one of those primitive indefinable ideas. An illustration first will show my meaning better than an abstract definition. When I say that (1) there is ice at the north pole, this proposition is true if (2) there is such a place and if (3) the ice is really there. An idea or judgment in somebody's mind is pointing at an independently existing reality, and, I believe, is in some measure corresponding to it or copying it. Note that the reality itself does not appear in any of the propositions. The phrases in the 'if' clauses (2) and (3) are not the reality to which (1) corresponds. They are simply propositions which repeat the meaning of (1). But I believe that there is some sort of an independent reality to which something in the judgment somehow corresponds. I feel that there are much graver difficulties with any alternative theory. Truth I think may be more truly defined as follows than in any other way:—It is a double relation between a judgment and a reality in which the judgment (1) points at the reality and (2) in some way corresponds to it.

Both propositions and judgments may be said to possess truth; or, if the pointing is in the wrong direction, or the correspondence inadequate, they possess falsehood. A proposition is an abstract aspect of a judgment. A judgment is a psychological existent, an emergent property of a nervous system.

It should be clear that Dr. Kattsoff and the current theory are entirely wrong in holding that the truth of a proposition depends upon verification or on any other kind of evidence. As instances multiply confirming a judgment it does not approach truth. It was true the moment it was thought, even if there was no verification; or even if there was verification of its falsity and even if the proof of its falsity should be complete, *i.e.*, amount to certainty. Truth is perfectly consistent with any degree of probability, even *zero*, because, as I have indicated, it does not properly appear on the probability scale at all. Verification is nothing but evidence. Evidence is never the reality itself nor the proposition itself, when we are dealing with the truth of propositions. It is always something extraneous. The truth of no proposition is self-evident. Truth depends on the proposition and the reality, and on these alone. Any verification may be deceiving to any degree. Any evidence may be totally misleading. A certain proposition may be false and a zero probable proposition may be true. We would not be able to conceive *how* this could be, but reality and truth are not necessarily limited by our faltering intellects, and it is very easy, after some practice, to conceive *that* it should be.

The theory that verification is true to its etymology, and makes the proposition true, is, of course, good Pragmatism. It is pure subjec-

tivism. If it is not true that there is any ice at the north pole, *i.e.*, if there really is none there, till we know about it, we are getting back to Protagoras. This view is irrefutable; but most of us are led by animal faith, the will to believe, and the determination of Nature, to regard it as mistaken. The reality of the ice is prior to all knowledge of it, and to all propositions and to all truth about it. The ice apparently was there before there were any animals who could think propositions. As soon as a proposition was framed asserting the fact, the proposition was true, even if there were a total absence of any evidence, or overwhelming evidence against it. The truth, a double relation between reality and proposition, can come into existence only when both terms exist. There is no truth prior to the existence of propositions. But, obviously, the truth depends on the reality, which is usually, as in this case, prior and independent in its existence; and the presence or absence of verification or of any evidence, is absolutely irrelevant to the case. Evidence is what makes rational people think that propositions are true. It is never what actually makes the propositions themselves true in fact. To maintain that 'being true' is the same as 'being warrantably thought to be true', is to return to the subjectivism of taking things to be in fact what they are experienced as.

Truth, then, is of a radically different nature from verification, probability, and certainty, and is a double relation between an idea and a reality. Let us now examine more in detail the nature of probability. Dr. Kattsoff is correct in identifying it with modality, and in representing it on a scale of infinite degrees between *zero* and *one*. And certainty is *one* and the opposite certainty is *zero*. But I deny that probability is mainly a ratio of instances of verification to instances of verification-non-verification.[2] The word 'probability', like truth, has a traditional meaning which we should not discard. It generally is used, however, like other important terms, a bit vaguely. Several meanings can be defined within the traditional limits. And I think that at least two meanings are worth distinguishing and preserving. I shall call those *recurrence* probability and *evidential* probability, respectively.

The former is a name for the principle illustrated by the objective fact that when a true die is cast repeatedly the six will come up about once in six throws. This principle is a secondary law of nature. Actually the laws of physics, biology, and psychology determine each time absolutely what face comes up. There is just so much energy imparted to the die in the throw; the die is impelled in a definite direction, with a definite side up, and a definite amount of rotational momentum. There is just so much weight to be lifted in rolling over a corner, so much friction, inertia, etc. And these various forces (acting

[2] *Ibid.* 82.

according to primary laws) determine absolutely which side will come up. Every time the six appears it is determined by these laws. There is no objective chance in the sense of indetermination. But we cannot measure these forces exactly, either as to direction or amount. We cannot tell, at the start of a given throw, which face will come up. So we turn to a secondary law whose operation we can measure. It is just a matter of counting the faces on the die and discovering if it is properly balanced and proportioned. This tells the ratio of the recurrences of a 'six' to the total throws. To know this is better than nothing, and it is often the best we can do.

Evidential probability is the more usual form of our traditional meaning. It has a better claim to the title of 'real' probability, and I shall so designate it. It is correctly defined as the strength of the evidence tending to make somebody think that something is true. It is related to recurrence probability, being, in part, superficially indistinguishable from it, but covering a wider field. The evidential probability of getting six is about one in six, because, if we know it is a true die with six sides, and one of them is a six, and if we know it will be thrown at random, then the strength of the evidence (rationally interpreted) tending to make us think that a six will come up is about 1/6, or 16 2/3 per cent. Evidential probability or 'real' probability is the strength of somebody's evidence for something. It is only barely suggested by the widely rejected[3] formula that probability is a mixture of knowledge and ignorance. It is really a definite weight of evidence 'for', always opposed to a definite weight of evidence 'against'. It is the rational force, or the probative efficacy, of a given body of evidence. Counting chance occurrences or counting verifications is one kind of evidence, but not the only kind.

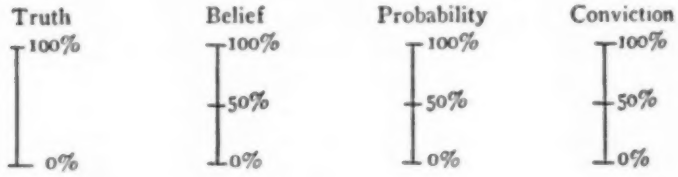
Let us consider again the case of a die. Suppose all six sides are sixes. The recurrence probability that a six will come up is 100 per cent or certainty. But no such thing is 'really' certain. If we speak of probability in its more proper traditional meaning, no predictions are certain. The die may have six sixes on it, but you can never be sure that it has. You see a six on no more than three sides at one time, and you may remember that you just saw sixes on the other sides. But your memory may be wrong. Also you cannot be sure that there is any die. If the mystics are right, and there is really only one Spiritual Fact, then discrete physical objects such as dies are utterly illusory. Further, if you should cast this die, which was in fact all sixes, still it might not turn up a six. If the laws of nature should change while you were casting it, it might turn up a picture of a cat or of an elephant. In a queer world such as ours, where so many absurd things do in fact happen, any odd thing might happen at any time. This bare

[3] *Ibid.* 82.

possibility reduces the probability of a six below 100 per cent, *i.e.*, below certainty. There are always at least traces of evidence tending against our belief that a six will come. The fact that a six is actually absolutely determined by the unchanging (not unchangeable) laws of physics, biology, and psychology, is irrelevant to the fact that no rational person can feel sure, before it comes, that it will come.

And for these reasons, the true probability of getting a six from a normal die is less than 1/6. There may not be any die so far as you know, even though there is one in fact. You cannot be sure that there is a six on it, or that it will stay on it. And if you cast it a thousand times and get a six in 167 of them, you still have not quite a 'real' probability of 16 2/3 per cent for a six in the next throw, for your memory may be wrong as to how many times you cast it, or how many times a six came up, and the laws of nature may change, and many other possibilities, or slight contrary probabilities, creep in, reducing the true probability below what it seems if you just relate what you think is the number of recurrences to what you think is the total number of casts. Thus evidential or 'real' probability cannot be identified with recurrence probability.

In the light of this discussion I shall suggest what seems to me a proper set of definitions for the terms, enumerated at the start of this paper, which designate the basic concepts in the theory of probability. I find that four scales are involved. Any instance of the assertion of a proposition will appear on all four. Ideally, if the proposition appears at the top of the truth scale, it will appear at the top of all the others, or if at the bottom of the truth scale then at the bottom of all the others. This ideal situation never in fact happens. No proposition ever appears at the top or bottom of the probability scale, and none should ever appear at the top or bottom of the conviction scale.



Real probability is defined as the probative efficacy or rational force of the evidence tending to make somebody think that something is true. There are an infinite number of points on it between *one* and *zero*, the two certainties.

Truth is approximately defined as the double relation referred to, and is not exactly definable because of the difficulty with the notion of correspondence. It clearly is *not* any degree of probability, conviction, or belief. The truth scale has only two points, a top and a bottom.

Every proposition is either true or false. Nothing intervenes between these.

Belief is the psychological phenomenon of judgment. A proposition is an abstract aspect of this. There are three points on this scale. The 100 per cent point is simple acceptance. The zero per cent point is simple rejection. The 50 per cent point is suspended judgment or Qualitative Doubt. At 50 per cent we cannot make up our minds.

The Conviction scale is our appreciation of the amount of probability, that is, our feeling of the probative force of the evidence. We may misinterpret the evidence and have a much stronger or weaker conviction than is warranted. This does not change the probability. The probability is the actual strength of the evidence, regardless of what we may think it is. In this sense probability is not subjective. But it is subjective in the sense that it is the real strength of the evidence present *to somebody*. If the evidence is not present in some one's mind then there is no probability. And our proposition, say a true one, may be 99 per cent probable to one man, 50 per cent to another, and 1 per cent to another, according to the differing amounts and kinds of evidence which they have; and they may all have a 100 per cent conviction, all misinterpreting the evidence, some more than others. Actually, the degree of conviction should be a copy of the degree of probability.

If we are very cautious in a given field, perhaps 99 per cent of probability and conviction will be necessary to induce Belief. Perhaps in another field we are more credulous, and 85 per cent is enough. When our conviction is around 40 per cent to 60 per cent, normal people experience Qualitative Doubt, or the suspension of judgment. Down around 15 per cent to 1 per cent, normal people disbelieve, or believe the contradictory.

The degree of negative conviction, ideally agreeing with the negative probability, is properly called Quantitative Doubt. Since no proposition is certain, we should always have some of this in our souls. It does not preclude either strong conviction or probability or definite belief or truth, that is, it does not invalidate human knowledge. Quantitative Doubt should be universal in the sense of qualifying all judgments. This must be distinguished from Qualitative Doubt, or suspended judgment, whose universality would actually reduce us all to Solipsism, and invalidate all knowledge.

Knowledge involves three things; (1) a belief, (2) which is true, and (3) which is well evidenced. I think we have a great deal of this. And at the same time we are never rationally justified in eliminating quantitative doubt, which is another way of saying that we are never justified in claiming certainty for any proposition.

GARDNER WILLIAMS

UNIVERSITY OF TOLEDO

THE METAPHYSIC OF EXPERIENCE[1]

ANYONE sufficiently interested in the Critical Philosophy to have read Professor Paton's *Commentary* carefully through to the end must lay aside the volumes with at least the surmise that their publication will prove an event of first-rate philosophical importance. Positive prediction may easily be mistaken in such a case. The immediate reception and the ultimate influence of such a work as this, necessarily technical and done on the grand scale,[2] cannot be confidently estimated by a consideration of its intrinsic merits alone. Much depends upon whether the minds of probable readers are already moving in the direction to which the author invites them or at least are growing dissatisfied and restive in the ways they have been following. Thus the time was ripe for the coming of the Critical Philosophy in 1781 and, in nineteenth century England, for the work of Carlyle, Stirling, and T. H. Green. In a smaller way there was a readiness in England and America for the writings of Henri Bergson in their English translation. Professor Paton wrote his *Commentary*, he tells us, with an ever-increasing conviction of the "permanent importance" of Kant's teaching—with a belief that this teaching "contains far more truth than is commonly supposed . . . more truth than many modern philosophies", and that "a real, as opposed to a superficial, knowledge of the *Kritik* may help to save modern philosophy from unnecessary error and to keep it in the path of progress".[3] Perhaps the English-speaking philosophic world is not at this time quite ready, even with Professor Paton's assistance, to seek this saving knowledge with a receptive mind.

In any case, however, it can hardly be doubted that, within the limits of its field and if one among the multitude of English works on Kant is to be singled out, the present *Commentary* will remain, for a long time to come, definitely pre-eminent and uniquely indispensable. Moreover, its influence, whether in the event wide-spread or not, will undoubtedly be to encourage not only specifically Kantian studies but also the fair appraisal of the importance of Kant's standpoint and ideas for contemporary philosophy. On the other hand, with all possible appreciation of the vigorous thinking and immense learning that went into the *Commentary* of Professor Kemp Smith, one may fairly suspect, I think, that for the younger philosophic generation, this great work serves mainly to encourage the persuasion that all needful knowledge of the philosophy of Immanuel Kant may be gained from his-

[1] *Kant's Metaphysic of Experience.* A Commentary on the first half of the *Kritik der reinen Vernunft.* Vols. I and II. By H. J. PATON, New York, The Macmillan Company, 1936. Pp. 586, 510.

[2] It is about a tenth longer than the *Commentary* of Professor Kemp Smith covering the whole of the *Critique.* Mention ought to be made of the elaborate General Index and the most useful index of nearly five hundred "annotated passages".

[3] I 18; II 464.

torical manuals and the occasional asides of conspicuous present-day detractors.

Ordinarily one expects of a Commentary the progressive annotation of a text rather than an extended consecutive exposition. If a summary statement of the contents of the work is supplied (or, as in certain well-known editions of Greek and Latin classics, a translation), this will be by way of supplement intended to make clear the general view of the text which has influenced the discussions of obscure or controversial matters forming the main body of the work. In Professor Kemp Smith's *Commentary* a brief preliminary statement of "the main features of Kant's general teaching" is included in the Introduction,[4] and elsewhere throughout the work there are frequent statements or suggestions of "essentially critical teaching" upon particular points—especially where Kant is held to have relapsed into besetting habits of pre-Critical or semi-Critical thinking. Professor Paton's *Commentary*, on the other hand, takes for its single task, the presentation of a consecutive analytical exposition of the contents of the *Critique*, in certain parts following the text "almost sentence by sentence". The achievement of this task, he believes, will be the best proof not only of the essential consistency of Kant's thought throughout the *Critique* but of the wholeness of the text. The exposition is interrupted from time to time by critical discussions and retrospective surveys as well as by references to present-day philosophy. In the main, however, the form of abundantly documented critical exposition prevails. "It is an irony of fate", writes Mr. Paton, "that Immanuel Kant, who declared the *Kritik of Pure Reason* to be intelligible only to those who understood it as a whole, should be beset by commentators who maintain that there is no whole to understand".[5]

Mr. Paton is persuaded of the essential internal coherency of the Aesthetic and Analytic as constituting a body of affirmative doctrine. As to the Dialectic, he has in the present work, nothing to say, though, as he tells us, he has "no reason to believe" that regarding it he should take any different view. This position involves the rejection of such theories of the manner of composition of the *Critique* as those of Vaihinger, Adickes, and Kemp Smith. "In this matter", Mr. Paton remarks, "there are naturally differences of degree". Although, in his opinion, Adickes' theory of a short basic *Abriss* is "not unreasonable" as a general conception, the theory is "unproved" and, in its details, "hazardous and even fanciful". Vaihinger's more extreme theory (which is followed by Kemp Smith in his analysis of the Transcendental Deduction) Mr. Paton regards as simply "incredible", "a monument of wasted ingenuity, rendered the more pathetic by the learning and clarity of the exposition". In any event, it would at least seem to a

[4] Section III xxxiii-lxi. [5] I 37.

comparative layman in this field of textual criticism that, as Mr. Paton holds, the burden of proof must rest, not upon "those who treat the *Kritik* as the unitary work it professes to be, but upon those who claim to distinguish the different strata of which it is composed".[6] It is frankly admitted by Adickes (perhaps with a wistful eye toward the achievements of Biblical 'higher criticism') that, as applied to the *Critique*, the undertaking to which Mr. Paton thus refers must be peculiarly difficult. Here, he writes, "we are not concerned with diverse individuals whose thoughts are assembled at a later time by still another individual no less endowed with his own distinctive characteristics. If this were the case, the component parts of the compilation might admit of separation in accordance with their time and place and conditions of origin and with the unique stamp of personality which they bore. Instead, however, we have to do with one man who, sometimes with the greatest skill, combined and wrought together results of his thinking which are in origin at most only a few years apart. No wonder that most scholars hitherto have taken the *Critique* to be, on the whole at least, in date and contents a unitary work! No wonder that these first co-operative efforts at separation of its component parts have perhaps at many points gone wrong!"[7]

Perhaps, as Mr. Paton says, the general hypothesis of Adickes is "not unreasonable". It is indeed almost incredible that in the short space of "four or five months", Kant could have composed the manuscript of the entire *Critique* consecutively and afresh, incorporating bodily none of the manuscript materials accumulated during the past ten or twelve years of arduous intellectual effort. Furthermore, there is Kant's own mention of a "first sketch", to which Adickes refers—although it must be noted that Kant speaks of this *Entwurf* not as a mere skeleton framework into which insertions were to be incorporated, but as a fluent version well supplied with appropriate explanations and examples, later to be discontinued.[8] When all is said, however, the *Critique* as we have it was offered to the public as a unitary work. If four or five months seem little enough time for even a coherent compilation of such formidable bulk, it still must be acknowledged that Kant was no literary novice in his fifty-eighth year and was certainly in a position to know the nature of the materials he had at hand. If fragments of different date were joined in these last months to form a consecutive exposition, we must assume that Kant, though hurried, was not an altogether incompetent judge of whether and in what order they properly belonged together in a consecutive exposition. The critic who asserts that Kant erred or was negligent must, it would seem, fairly assume the burden of proof in each particular

[6] I 38-41.
[7] Adickes' Edition of the *Critique* (Berlin, 1889) xxi-xxvii.
[8] Preface to A, xviii.

instance. The contradictions, repetitions, and confusions of point of view and tendency which excite critical suspicion in the study of a philosophic work are always and necessarily matters of subjective impression at first which may take on a different aspect on more careful and comprehensive consideration. If I may here join my own witness to that of Mr. Paton, just this is what appears to happen in repeated instances in which confusion and contradiction have been roundly asserted to occur. As for ambiguous reference of pronouns and the clumsy use of 'particles', such lapses, like other indications of scissors and paste which critics discover in the pages of the *Critique*, are not wholly absent from the philosophical literature even of today. The operations of *Quellenscheidung* which have been applied to the *Critique* would as a rule find in current writing a time-scale much shorter than the "few years" which *Kantphilologie* has found so embarrassing.[9] But whether the time-scale is spacious or confined, there is a remark of Mr. Paton which is worth remembering: "It is not my experience of the human mind that inconsistencies of thought and expression are always, or even generally, due to differences in the date of writing."[10]

Mr. Kemp Smith somewhere lays down the precept that Kant should be assumed always to mean (as in fact he "nearly always" does mean) precisely what he says at the time when he says it. This begs the question. When an astronomer speaks of "sunrise" and "sunset" it is hardly to be supposed that a fragment from his 'pre-Copernican' youth has been carelessly included in his manuscript or that momentarily he has lost his grip on essential Copernican teaching. It is surely consonant with "essential Critical teaching" that only in some context, indicated or taken for granted, can a sequence of spoken or written words have any meaning at all. In general, the wider the relevant context, the surer the interpretation of the meaning. The "patchwork" character of the *Critique* is a conclusion no better than the array of data upon which it rests. The data are a multitude of personal decisions of the critic to the effect that irreducible contradictions and other incoherencies exist at particular places in the text. The reliability of these decisions in detail must be more and more open to suspicion if, into them, what is entitled to acceptance only as an eventual conclusion is allowed to intrude as an *a priori* presumption of fact. This is what happens if we assume off-hand that two seemingly contradictory statements or two uses of a technical term must necessarily represent two times or 'specious presents' in the development of Kant's thought and must

[9] Adickes' "Criteria" are shortly stated in the Introduction to his Edition (xxiv ff.) together with a list of the fragments, in the approximate order of their composition, into which the text of the *Critique* is supposed to fall apart when the "Criteria" are applied.

[10] I 41.

therefore be once for all taken to mean precisely what they separately "say". In the end, the apparent contradiction may have to be acknowledged to be a real one, but in no case have we the right to prejudge the issue.

Coming now to the consideration of Mr. Paton's exposition of the *Critique*, I shall first enumerate what appear to be its outstanding features and then comment briefly upon some of them in the sequence in which they seem to me most significant. These features are, I think, quite clearly the following: (1) The defense of the Transcendental Aesthetic as a subdivision of the whole set apart for the separate treatment of the element of intuition in knowledge. (2) The argument (amounting, as it seems to me, to a definitive proof) in support of the view that the "forms of judgment", taken over from general logic in the Analytic of Concepts as containing a systematic revelation of the categories, were for Kant the forms of synthetic as well as analytic judgments—not of the latter only, as is generally asserted. (3) The appraisal of the Metaphysical Deduction as therefore in itself neither pedantry nor subterfuge, though it is, nevertheless, probably the least substantial part of the whole *Analytic*—not mainly because it claims completeness for the table of categories but still more because, as a matter of principle, to derive the categories of knowledge from any classification of the forms of judgment must in the end be impossible. (4) The achievement of a coherent rendering of the Transcendental Deduction in complete disregard of the cleavages asserted to exist in the text by the patchwork theory of its composition and denying (as I believe, rightly) the alleged incoherencies between parts of the argument which are supposed to indicate these cleavages. For example, the 'subjective deduction' of the first edition is considered where it stands in the text, as a part of Kant's provisional exposition of the Deduction, not as the record of a last-minute lapse, on the eve of publication, from his most advanced Critical insight. (5) The careful analysis of the Schematism which shows it to be an indispensable part of the Critical structure instead of a superflous excrescence, as is frequently maintained. More than this, however, the Schematism affords a new basis for a system of Pure Principles, probably preferable to the Metaphysical Deduction. (6) The exhaustive treatment of the Principles of Pure Understanding in Books VIII-XI, with the insistent warning throughout that the Principles are "conditions of experience through which alone experience is possible" as "existent in time", not conclusions drawn from the time-order of our apprehensions or rules of method for the development of knowledge. (7) The discussions of certain general problems of "Transcendental Idealism" gathered together in Book XII, among which the treatment of Inner Sense and Self-Knowledge is, I think, especially notable. Certain points in these concluding expositions will be referred to in what follows.

In the last of his chapters on the Schematism (in Book VII) Mr.

Paton writes: "Kant's [general] doctrine rests on two main foundations; firstly the forms of judgment and secondly the transcendental synthesis of space and time. It is possible that the second may stand, even if the first has been undermined. The transcendental schemata are not deduced from the forms of judgment, but from the nature of time." Judgment may still be necessary for our experience of objects, though the forms of judgment in severalty are not, and may still presuppose the unity of apperception. Pure imagination may still play its part in imposing a corresponding unity in one time upon the empirical manifold "in accordance with the demand of thought". This implies "the necessity of certain categorial characteristics of all objects" which are set forth in the Principles of the Understanding. But the proof of these latter rests "not upon the forms of judgment but upon the unity of time. The appeal made to the forms of judgment [in the Metaphysical Deduction] serves only to enrich some of the categories and to guarantee the completeness of Kant's list; and the latter point is quite certainly a mistake".[11]

This frank proposal to ground the Principles directly upon the "nature of time" as a "unity" is, I think, undoubtedly a step in the right direction. It appears to me to have implications, however, which go beyond anything Mr. Paton is willing to concede and it is these implications mainly that interest me in the suggestion. In endeavoring to point out why, as it seems to me, we must recognize these further implications, I shall disregard Mr. Paton's further suggestion that, in order to "make a satisfactory doctrine, we shall have to work with space and time (or perhaps space-time). . . ." "Such a development of Kant's view will certainly", he writes, "give rise to new difficulties; for it may tempt us to regard the mind itself as spatial and this will have consequences which Kant at least is not prepared to accept". Although Mr. Paton finds that "Kant's own mind was steadily working" in the direction of coördinating space with time on more equal terms, I question whether "such a development" is as necessary as Mr. Paton seems, here and elsewhere in his book, to think.[12] Is it true, then, that the Schemata can really be "deduced from . . . the nature of time" and that the unity upon which the proof of the Principles must rest is the "unity of time"? Before either of these matters can be determined we must first determine the "nature of time". If we take "unity" as its essential character, we may seem, in so far, to be conforming to the "demands of thought" and assuring a manifold congruent with "thought's" outstanding character of "unity".

How much, we must ask, does the "unity" of time really signify? It means primarily that different times are parts of one time. All parts of time are homogeneous with the one time; and again, time is continuous

[11] II 77 f. For the sense in which certain categories are said to be "enriched" by connection with the forms of judgment, see II, 68-70 (§2).
[12] II 78.

in the sense that between two times, taken as close together as we please, time always intervenes. But if we think of time in such logically interdependent terms as these, are we not on the way towards a closed and exhaustive system of all possible principles of the understanding as certainly as Kant, with his amended list of the forms of judgment, believed himself to be on the way towards the complete system of the categories? And, in principle, with no better reason? In conforming thus, in our conception of time as essentially a unity, to the "demands of thought", not only are we accepting a somewhat artificial and scholastic conception of a something eulogistically called "thought" but we are asking for no realistic interpretation of the experiential meaning of thought's "demand". We are also ignoring (which is still more important) much of the characteristic intuitional quality of time itself upon which Kant's proofs of the Principles chiefly rest—a quality which the complex of characters descriptive of time's unity is unable to afford. "Time marches on." "The moving finger writes, and, having writ, . . ." Time is irreversible succession, and, beyond any reach of time that we may mark off, there is time extending on.

Irreversibility and infinity, like unity, are, however, characters first of all of our progressive experience, not of time as an absolute "form" of intuition. As such they pertain, like unity, to those junctures in experience which require our separate notice of intuition, and of time, as an aid to their clarification. Our activities are, for our reflection upon them, step-by-step. This thing must be done if that other thing, which is more directly or "intrinsically" desirable, is dependably to happen. This, that, and the other experimental test of the unknown, yet problematic, object must be made.[13] Only so shall we have a "sensuous manifold" which the pure synthesis of imagination can shape by its constraints into an hypothesis having characters of the "formal" sort such as the Principles of the *Critique* describe. No hypothesis, whether of behavior or of theory, can be, for reflection, self-sufficient. An hypothesis is the answer to a problem, but the practical or the theoretical position in which this answer places us will be beset in its turn by new problems as yet unforeseen. In confronting these our present

[13] I say "test" rather than "determination" because "test" suggests less strongly than the other term that what we are concerned to know are *qualities* inherent in the object as a substance. It is not only sufficient but preferable to regard the "sensuous manifold" as made up simply of the *intuited responses* which the object makes to our procedures. From this point of view the present-day prominence of the concept and procedure of testing is of interest. Compare with this the "less happy" terminology of Kant referred to by Mr. Paton in I 62 (top). Cf. Professor L. M. Terman's discussion of "The Mental Test as a Psychological Method" (Presidential address for 1923 to the American Psychological Association) in *The Psychological Review*, xxxi 93ff. Professor Terman holds that statistical techniques enable the test-procedure to dispense with a prior exact definition of the function under investigation. "In other words, the test itself will furnish ultimately the definitions which our critical friends are so impatient for" (105). This appears to me to accord with "Essential Critical Teaching."

hypothesis will have to undergo revisions not now conceivable. The irreversibility and infinity of time, like unity, represent in abstraction what are native characters of experience. We cannot understand them as mere constituent details of an ultimate "form" of intuition somehow set there in "our frame" mechanically to arrange the "sensuous manifold" in a certain pattern.[14] These characters of time are as impossible of derivation from the logical conception of its unity as "those who know" declare entropy to be from the principle of the conservation of energy. No doubt time is not time at all unless it is unitary, but the unity of time is an impoverished rendering of time's full measure of character as an intuition. Without this full measure Kant's proofs of the Principles, depending upon the "nature of time", would lose their force.

Mr. Paton's proposed reconstruction of Kant's argument thus halts mid-way. If Kant's faith in the forms of judgment is "ingenuous", to rely upon the "unity" of time is only less so. We must, I think, go further back, in our retreat from 'logic', to the distinctive problematic mode or situation of experience in which all discrimination whether of intuition, of imagination, or of categorial elements, occurs, and on the ground of which is to be found the only possibility of understanding these factors in their interdependence. In this way we shall, for one thing, run less risk of the 'systematic' illusion—which, of course, Mr. Paton repeatedly disavows. As to this matter, indeed, the chief danger is not that we shall merely err in cherishing a mistaken belief. In itself that might do no great harm and it is certainly very gratifying to the victim. The greater danger is that philosophy, in the complacency of this illusion, may miss the significance of the continual emergence of new categories and points of view in knowledge, such as statistical correlation, probability, functional relation, symbol. Such ideas as these can less plausibly be thought of as representing necessary structural features of the 'mind' than can substance, cause, and interaction. They have much more the aspect of expedients devised by a personal enquirer who confronts the world with purposes and standards of satisfactoriness in knowledge (and in other reaches of experience as well) which are inevitably in course of constant transformation and transvaluation.

In Mr. Paton's interpretation, however, the *Critique* is throughout, in motive and in method, analytic; and this is the other and larger matter upon which the implications of his important suggestion have a bearing. The first grand division is entitled *Elementarlehre*. Knowledge in the analytic view is taken not merely as a fact or existent but as essentially having meaning. The problem is not, in the manner of Descartes, to substantiate the "claim" of knowledge to objective validity

[14] *Cf.* Mr. Paton's tentative and deprecatory suggestion of a "rough analogy" to explain how space and time, as forms of intuition, might, after a fashion, be conceived to do this sort of thing (I 164-169; II 424-425).

but to ascertain of what elements this claim shows knowledge unquestionably to be compounded. Kant is a transcendental, not a problematical, idealist. The ruling mode of the *Critique* is that of the "objective deduction". If there are passages of a more "subjective" or "synthetic" cast, this is because objective deduction is acceptably confirmed in its findings by showing how elements analytically discovered can consist and coöperate and sustain each other as aspects of the seamless web of knowledge. In no sense, Mr. Paton insists, is Kant concerned with either the genesis or the growth of knowledge. Early and late, from the Aesthetic to the Postulates, this warning is reiterated in terms suited to the context. "The *a priori* does not involve temporal priority."[15] "The whole *Kritik of Pure Reason* is an analysis of our experience into its formal and material elements. An analysis of this kind need not imply that we have first the matter and then the form, or first the form and then the matter; and I see no sufficient ground for attributing such a mistaken psychological theory to Kant."[16] And again: "Throughout all this [discussion of pure apperception] Kant is attempting to analyze experience, and, by abstracting from the empirical elements in it, to determine the necessary conditions or elements."[17]

While I am mainly in agreement with the analytic view as sustained by the letter of Kant's argument in the *Critique* and wholly in agreement as regards the general philosophic positions against which the analytic view is urged, I must, on the other hand, confess that as a basis and method, in its own right, for a theory of knowledge, I find it difficult. In the endeavor to think myself into it I have an impression of constriction closing in, of capture within the confines of a mathematical instant without duration. By comparison the narrow compass

[15] I 77.

[16] I 138. This is followed on the same page by the remark that "This psychological interpretation of Kant is the source of many errors. It is, I think, the main source of the commonly accepted view that Kant took over Hume's doctrine of sensations as isolated and unrelated atomic entities. For this view I can find no sufficient evidence." Mr. Paton acknowledges that this is "a difficult question". I have no opinion upon it, as a matter of chapter and verse, at this writing, but, as the sequel will imply, I think the view in question to be wholly unnecessary for the interpretation of Kant's general teaching.

[17] I 405. See also (almost at random) I 331, 340, 525, 577, 585; II 75, 269. The last of these references is to a passage in the discussion of the Second Analogy. "It is far too commonly supposed that Kant is trying to infer objectivity, or even causality, from the irreversibility of our sense-perceptions." Mr. Paton's rejection of this supposition as an interpretation of Kant is absolutely conclusive, and not less so (apart from any question of interpretation) is his rejection of the procedure mentioned as a possible way of attaining to the idea of causality. Note that it is the irreversibility of *time* to which I have referred above as taking us "behind" time to the problematic situation in experience in which alone can time-differences and the characters of time become known and significant for us. I repudiate as strongly as possible the empiricist illusion of our getting the causal idea from the irreversibility of our sensations or sense-perceptions but I would suggest that what is needed for Kant's defense in this connection is not less of empiricism but more.

of even a "specious present" would be welcome. It is as if one were entering a two-dimensional "Flatland", a Flatland set up vertically on edge across the onward course of living experience. Despite the preponderance of printed evidence, I find it difficult to believe that Kant really thought of his work, as a whole, as laid out in such a frame of reference as this. Is synthesis for Kant, as Mr. Paton more often implies, a *holding* together or even a *taking* together and not an actual temporal *putting* or *joining* together? How, in the timeless Flatland of the analytic standpoint, is it possible for Kant to distinguish between "self-identity" and "consciousness of self-identity" and to insist that the unity of apperception must be identified not with the former but with the latter?[18] Again, how can the "act of apperception" be distinguished from the "unity of apperception?"[19] And again, is anything important gained by rejecting with Mr. Paton the hypothesis of "noumenal synthesis",[20] if "synthesis in experience", which he prefers, is to be reduced to a mere unity of "times and spaces", discernible by analysis as a necessary feature and condition of finished knowledge?[21] On the one view, synthesis takes place and completes itself behind the scenes before there can be "consciousness" in the individual and without motivation or guidance by any selective interest of the individual.[22] On the other view, synthesis is supposed to be an analytical aspect of the finished knowledge-complex. But when a knowledge-complex has come to completion as a coherent whole, self-consciousness ("Das *'Ich Denke'* [das] muss alle meine Vorstellungen begleiten können") is in evidence, not as a constituent (like the categorial and intuitional elements directly involved in the hypothesis), but, actually, as an accompanying (*begleitendes*) interest in the hypothesis as an achievement and as a rule for subsequent procedure. If we sharply cut away in abstraction the whole prior and subsequent experiential context of the hypothesis (I am suggesting that all synthetic judgments in ordinary experience and in science are hypotheses), self-consciousness simply vanishes on Mr. Paton's showing no less than for the "phenomenalism" which he rejects. This is the lesson of immediate realism, to which recent idealism has been so closely akin.

It seems to me to be no sufficient answer to such difficulties merely to take one's stand upon the ground of "thought" and to reaffirm the analytic interpretation. No doubt in a sense the standpoint of the *Critique* is and ought to be analytic, but if we are to have analysis, let it be analysis that follows junctures emerging in the course of the actual knower's quest for knowledge—not a kind conducted ostensibly

[18] I 512 (referring to B 133-136). [19] I 405-406 (referring to A 107 ff.).
[20] Involved in Mr. Kemp Smith's strange conception of "phenomenalism" as the true but never fully recognized import of Kant's "Critical" teaching. See his *Commentary*, 270-284, and elsewhere.
[21] I 582-585, especially 583, note 1.
[22] For a discussion of Kemp Smith's use of the terms "consciousness" and "self-consciousness" see Paton I 330 ff.

in Flatland by the epistemologist, under the guidance of categories and distinctions between functions about whose experiential meaning the knower is in a position to know far better than he. That objectivity of knowledge, whose general conditions and implications the epistemologist in his logical austerity assumes to specify, is the same objectivity the knower is concerned with in detail when he wonders whether what he sees is the appearance of a lake or a mirage, a mere surface crack or a break in the structure of a dam. The abstraction of sensibility which for the epistemologist justifies, even requires, the separation of Kant's Aesthetic from the Analytic, is the same abstraction that puts the knower in a position to guess the true character of an unidentified substance by exact determination and measurement of its sensory "effects". Once again: Kant tells us that the "form of experience" is a unitary experience in which all perceptions stand in thoroughgoing and orderly connection.[23] There is a sense in which we must answer that, on the contrary, no perceptual experience, strictly as perceptual, can ever possibly have this form. For any physical object of perception, any object that is for us "here" (or "there") and "now", a substance, a cause, is, as such, an object undergoing determination in some respect and the determination is *not yet* finished. We bring the ball to the light and *then* find it red. We "heft" it and *then* judge it good for a missile. When, however, the ball has thus been "tested" and its "responses" determined, its aspect or status of "objectivity" in space and time changes insensibly to that of meaning and importance as an asset.[24] But there is of course another sense in which Kant's statement is true and most important. Eventual thoroughgoing and orderly connection joining in "one experience" all the elements and aspects of a complex problematic situation (or nearly all, as Aristotle might prefer to say) is indeed the demand of "thought" because it is the only safe assurance of continuity and growth in our experience.

At a number of points in the *Critique* this shift to the locale of actual inquiry humanly carried on in time seems to ease the difficulty of interpretation. To some of these instances I wish now to refer very briefly.

1. It seems clear that a vast deal of gratuitous protest has been

[23] A 110.

[24] Mr. Paton has a discussion of the same red billiard-ball (I 331). I agree that "when we see a red billiard-ball" we do not "first of all see the colour red and then proceed to bring it under the category of substance and attribute". It is perfectly true that there is "no temporal succession of *this* kind in ordinary human experience" (my italics) but I submit that there *is* another type of temporal succession in "ordinary human experience", namely, the one exemplified by perceiving a billiard-ball which in so far as problematic (for example, as regards its color, since the lights are out) is apperceived by us as a *substance* having various possible visual "effects" upon us. We *then* proceed to ascertain its particular visual effect to be *red*. *Then* the perception flattens out into immediacy. And all this *is* a temporal succession occupying good and proper time as told by the clock. It is experiential but not "empiricistic" after the fashion Mr. Paton warns us against.

directed against Kant's supposed assumption, in the Aesthetic, that objects are given in sensibility alone, to be judged and known afterwards in conceptual terms. This assumption he is supposed only afterwards to have found to be impossible, but perhaps without sufficient conviction to make a recasting of his exposition seem imperative. What, however, is Kant's statement of the matter? At the very outset he writes: "Objects are given to us by sensibility and it alone yields us intuitions. . . ." From the context his meaning clearly seems to be that the sheer quality of objects, not their objectivity, is afforded us (*geliefert*) by sensibility. Surely objects have given qualities or 'aspects'. It is to these that Kant proposes to refer, in what follows, by the technical term Intuition (*Anschauung*).[25] These intuitable qualities are precisely what must be determined, by superficial observation or by appropriate tests when an object (such as a suspected tubercular patient) obtrudes as problematic and data must be had for an hypothesis or diagnosis. One seeks determinate "whats" to be set down as data on the record. Otherwise categorial determination upon a scale of degrees would hang in mid-air. Of course the problematic object has its categorial or objective status—that is involved in its status as problematic. Otherwise there could be no possible reason for determining the details of its givenness in space and time. I see no good reason for supposing that Kant ever believed an object could be given, as "object", in intuition alone, but undeniably determination of the givenness of objects in terms of space and time does precede the full determination of the object as a significant factor in our environment.[26]

2. Mr. Paton in Book XII discusses Kant's Refutation of Idealism. He believes that when Kant writes: "Also ist die Wahrnehmung dieses Beharrlichen nur durch ein Ding ausser mir und nicht durch die blosse Vorstellung eines Dinges ausser mir möglich", he means "only through a thing outside me *in space*". In other words "Dinge ausser mir" means "phenomenal things in space".[27] If this definitely was his meaning it seems strange that Kant did not, at so crucial a point, make it unmistakable—especially since in the first edition, as Mr. Paton points out, he devoted a separate short paragraph to the ambiguity of the phrase.[28] Mr. Paton's decisive reason for his view appears to be that for Kant the only "thing outside me" that can be proved to exist, and that so can refute idealism, is a phenomenal thing in space, not a thing-in-itself. But I suggest that from the problematic standpoint no such

[25] A 19 = B 33. Mr. Kemp Smith in his translation very properly underscores "given".

[26] I wish merely to call attention, in connection with the Aesthetic, to Mr. Paton's defense of Kant's treatment of space and time against the severe strictures of certain mathematical readers of the *Critique* (I 155-163). In some respects Mr. Paton's views are paralleled in an interesting way by those of Professor W. C. Swabey on the metaphysical significance of the theory of relativity, in his recent *Being and Being Known* (Appendix on "Metaphysics and the Theory of Relativity").

[27] II 377-380; *Cf.* B 275. [28] In the fourth Paralogism, A 373.

proof is necessary for Kant's purpose of refutation. As such the problematic object is, in some particular or particulars, undetermined. But as an object to be determined in these particulars through suitable manipulation and test, it is "acknowledged" by the knower as an existent "ausser mir".[29] The burden of proof rests not upon the knower but upon the 'idealist' who may be supposed to question the object's presence there. The lacking determinations, when obtained, will join those we already have—as to which there is meanwhile question only regarding their meaning, not their given quality. The completed whole will form a phenomenal object or substantive complex ready to play its part as a meaning in experience. But the "thing outside me" is a substance, not in Kant's phenomenal or categorial sense but in the sense of "thing-in-itself".[30]

3. And finally, the conflict of "subjectivism" and "phenomenalism" which, according to Professor Kemp Smith, sways now to one side and now to the other in Kant's mind and in the *Critique*, seems, on this basis, to admit of a comparatively simple adjustment. Professor Kemp Smith maintains that "phenomenalism" was the essential import of the Critical Philosophy and that if Kant had had a better understanding of the latter he would have recognized this truth. I believe that, on the contrary, in refusing to give up either of these points of view Kant gave evidence of a sounder instinct and a firmer hold upon the realities of our cognitive experience. For the difference between the two points of view is simply the difference between the initial and the terminal stages of cognitive process considered as the resolution of a problem. In the initial stage of gathering data in intuition by way of sensibility, with every precaution of accuracy and all possible control of preposession, the emphasis is obviously strongly "subjectivistic".

[29] "Acknowledgment" of the object represents neither an inductive hypothesis based on evidence supposed to prove the existence of an external world nor an impulse of "animal faith". There can be no evidence for such an hypothesis that does not already assume its truth, and the meretricious piquancy of Santayana's phrase should be no disguise for the self-contradiction inherent in it. *Cf.*, *The Philosophical Review*, XLVI 622-627; also Paton I 417-425—especially 424, where the relation between our concept of the Transcendental Object and the concept of "the necessary synthetic unity found in appearances" is pointed out. "All we really *know* about appearances when we assert that they are appearances of an object is that they possess necessary synthetic unity. Hence, our concept of the transcendental object so far as we actually employ it in *knowing* that appearances are appearances of an object, must be *reduced* to a concept of the necessary synthetic unity found in appearances. . . ." But "acknowledgment" is not, and need not be mistaken for, *knowledge*. Incidentally, note the clause, "So far as we actually employ it in knowing". What does it mean in Flatland from a strictly analytic standpoint? See also II, Ch. lv.

[30] *Cf.* Paton I 180 ff. (§§ 8, 9); II Chs. lv, lvi (especially 442-446, 452-455). Mr. Paton appears to believe that there can be, for Kant at least, no *affirmative* reason for the belief in things-in-themselves. I have tried in the above to suggest an affirmative reason, though undoubtedly this belief not only must not aspire to the status of knowledge but would be forgetting its affirmative value in inquiry if it did so.

The acknowledged "object outside me" is there to be acted on in all necessary inquiring ways. Its apprehended responses as received in sensibility are under the circumstances palpably "within" me—not for the present purpose within my body, but within the compass of my logical control while the desiderated hypothesis is taking form and substance in imagination. With the hypothesis completed and in course of verification, the manner of growth of this ordered ideal complex becomes a matter of diminishing concern. Instead, one is now interested in it as a meaning with which it is of first importance to comply, whether in thought or in action. If the "subjectivistic" stage of the inquiry has been well managed, the present problematic episode will come to its close with a "phenomenal" complex of meaning upon whose unity of prompting or implication we can rely. That Kant ought to have abandoned "subjectivism" as "pre-Critical" and recognized "phenomenalism" alone as conveying the true meaning of the Copernican revolution seems to me a quite impossible suggestion.[31]

In Mr. Paton's view, Kant's "metaphysic of experience" is concerned with the formal conditions of experience. It discovers these conditions to be pure intuition, transcendental imagination, and the transcendental unity of apperception. Except through the involvement of these interdependent functions with empirical intuition we should never have experience (that is, knowledge) of a world. Is there for Kant a metaphysic of experience of any other kind than this?

If the construction I have put upon certain parts and aspects of the *Critique* is at all tenable, we must answer this question in the affirmative. Despite the form imposed upon his explicit teachings by the desire to be clearly understood, Kant's inquiry was half-consciously motivated and controlled by the conception of knowledge as a self-conscious undertaking of the individual knower seeking fulfillment in a real world roundabout him. Knowledge, despite the general analytic method of the *Critique*, was for Kant a temporal process. Otherwise, indeed, it would be surprising that, so soon after the preparation of the second edition, he actually did conceive in this way the employment of the "categories of freedom" in the *Critique of Practical Reason* and presently developed in the same way the central conception of "reflection" in the *Critique of Judgment*.

H. W. STUART

STANFORD UNIVERSITY

[31] Mr. Paton considers that "there is a real difficulty in reconciling Kant's view that the phenomenal world exists only in relation to human minds with his view that the phenomenal world is a common world made up of permanent physical substances in space" and believes that Mr. Kemp Smith is in part attempting to deal with this problem in his discussion of subjectivism and phenomenalism. See I 583 (footnote); also I 427-429, 450-453. There is no doubt a difficult problem here but I believe that from the point of view I have tried to indicate the difficulty is less formidable than it otherwise seems.

REVIEWS OF BOOKS

A History of Political Theory. By GEORGE H. SABINE. New York, Henry Holt & Company, 1937. Pp. xvi, 798.

The modern study of politics, especially in American universities, has shown in an acute form that antagonism between "theorists" and "fact-finders" which in some degree is to be found in all the social sciences. The study of Plato and Aristotle stood sharply opposed to the study of municipal sewage-disposal works, *locus standi*, private members' bills, and the recall of judges. In their antagonism, the student of political ideas and the student of political institutions each sought to justify himself by rather naïve appeals to something like metaphysics. The theorist seemed to be defending a position pretty close to realism (in the medieval sense), and to hold that political action is the imperfect, but somehow inevitable reflection of political ideas. The student of the mechanics of government, the "practical" man, was in a much more innocent position. He knew he was a scientist, and he knew that scientists are concerned with facts, and facts only. Thanks to a miracle known as induction, these facts, once discovered, would arrange themselves for him neatly in patterns to delight and improve the world.

Of recent years this antagonism has been dying down, even within university departments of Government or Political Science. Professor Sabine's *History of Political Theory* should be an extremely valuable instrument in furthering this new concord between students of politics and students of political ideas. For here is a book which the most hard-boiled practitioner of political manipulation, the most solidly planted lover of facts, could not fairly describe as concerned with political ideas in a vacuum, or in cloud-cuckoo land. Professor Sabine, like any conscientious thinker of the twentieth century, is keenly aware of the problem of the relation between men's words (theories) and their deeds. In a clear and almost too modest Preface he explains his own position as "social relativism". His own philosophical preferences "are in general agreement with the results of Hume's criticism of natural law. . . . So far as he [the author] can see, it is impossible for any logical operation to excogitate the truth of any allegation of fact, and neither logic nor fact implies a value. Consequently he believes that the attempt to fuse these three operations, whether in Hegelian idealism or in its Marxian variant, merely perpetuated an intellectual confusion inherent in the system of natural law."

Starting from this position, Professor Sabine is bound to treat political practice and political theory as interrelations, neither being intelligible without the other. On the whole he maintains this position through the long historic range from the Greeks to Alfred Rosenberg,

summarizing clearly and economically the doctrines of all the great figures and a surprising number of the minor ones, and never—or rarely—forgetting that these doctrines were held by human beings in a definite historical environment. He does indeed write that "Hume's positivism had the paradoxical effect of producing an elaborate metaphysics, a religious revival, and a firmer belief in absolute ethical values." His point in its context is clear enough, but surely Hume himself would have found that word "producing" a trifle over-assertive? Lapses like these, however, are the common lot of the most conscientious relativist, who has to use in language a means of communication forged in large part by the absolutism of common sense.

There is a good deal in this book which one might like to debate with Professor Sabine, which means that it is a good book, and a useful one for the teacher. But the debate would be almost wholly concerned with what the historian calls interpretation rather than with what he calls facts—and it might, like most such debates, end up with the dubiously profitable, but unavoidable, discussion of values. Such, for instance, is the question as to how far the relation between the individual and the Greek city-state of classic times was unique, a question in which Professor Sabine takes the orthodox position that it was unique, and that from this uniqueness something of Plato and Aristotle has remained forever alien to later men; or the question of Rousseau's relation to the whole movement known as the Enlightenment, where Professor Sabine places Rousseau in all respects at opposite poles from the *philosophes*. Professor Sabine is less harsh with Machiavelli than are most men of good will who have written about him, but he does not bring out clearly enough that, long before Hume, Machiavelli had discovered that "reason is and ought only to be the slave of the passions and can never pretend to any other office than to serve and obey them". Finally, one feels that Professor Sabine has over-emphasized the romantic side of modern anti-intellectualism and under-emphasized its critical and skeptical side. Bergson, Nietzsche, Sorel, and Pareto make a rather strange assembly (757, 758); certainly it cannot be said of Pareto that his most distinguishing social bias was a "contempt for bourgeois virtues and ideals".

The book is admirably balanced as to space. Many modern textbooks in history are disproportionately detailed and long-winded as they approach the present moment; in many a survey, there are more pages devoted to the period *since* 1815 than to that from the pre-Cambrian *to* 1815. Professor Sabine comes down to Fascism and Communism, but they receive no more space than their due; nor are his pages cluttered with the names of tenth-rate theorists, names which seem to occur in many manuals simply because they are in the biographical dictionaries. The bibliographies at the end of each chapter are excellent. All in all, this book seems to the present reviewer by all

odds the best short manual on the history of political theory now available.

CRANE BRINTON

HARVARD UNIVERSITY

Humanistische Reden und Vorträge. Von WERNER JAEGER. Berlin, Walter de Gruyter & Co., 1937. Pp. viii, 220.

When Werner Jaeger delivered these addresses on various occasions from 1914 to 1932, he was not quite aware of their historical significance. He was concerned with an important idea, which runs like a golden thread through them all. He applied it to the changing conditions in his own country, where ancient culture seemed swamped in the multiplex individualism that set in with the Revolution after the War. But he could not foresee the tragic irony that his words convey to us, as we contemplate the sort of order that soon was to arise from that chaos. For no philosopher-king but a new Dionysius of Syracuse, in several countries, ascends the throne.

The essence of these papers has already been presented to the American public in two stimulating addresses, one given at the Harvard Tercentenary Celebration and the other at the Christmas meeting of the American Philological Association last year. They form a prelude to the monumental work on Greek culture, *Paideia*, of which one volume has already appeared. They are being translated into Italian with the illuminating title *Platonismo ed umanesimo*—for Plato is at the centre of Professor Jaeger's thought—and they richly deserve a rendering into our own tongue.

The series opens with a debate between History and Philology. Neither wins, for both are vanquished by Humanism. Jaeger himself is of course a brilliant exponent of both History and Philology. The man who traced the development of the mind of *il maestro di color che sanno*—an historical theme of considerable scope—is versed in the technique of both historiography and philology. He of course would not reject but encourage the investigation of subjects large and small. He pays a noble tribute in this volume to the memory of two colleagues of his in Berlin, philologians and historians of world-wide fame, Hermann Diels and Ulrich von Wilamowitz-Moellendorf. But from his first appearance in the scholarly arena, Jaeger has headed a revolt against the tendencies of the last hundred years in classical scholarship. The world of Boeckh and Gottfried Hermann, to whom Philology meant a unified appreciation of all aspects of antiquity, enlarged and burst its bounds with the progress of diversified research. To scholars like Usener and Wilamowitz the vision remained, but the profitableness of so comprehensive a quest has become increasingly dubious. Moreover, adopting the methods that led to great achievements in the fields of natural science, scholars applied the theory of evolution to

literary history, with the result that the great writers of the past were turned into an aggregation of causes and influences. Amid this discord, Jaeger would seek, like his master Plato, a new way to the one in the many. In the study of literature and of art, he would have the learner contemplate greatness in and for itself. This means a return, with due discretion, to hero-worship. It is about time. The late Irving Babbitt would have rejoiced to see this day.

But further, the humanism that Professor Jaeger advocates presupposes an understanding of what culture meant to the ancient Greeks. It is not founded on a reverence for tradition for tradition's sake nor solely on the study of Greek literature for its supreme merits. It is not to be attained merely by following the history of Greek ideals in their influence on the later literature of the Occident. While concerned, of course, with all these matters, the new humanism aims primarily to recapture the effort of the Greeks to train the individual man in all aspects of his nature—physical, mental, moral, aesthetic and spiritual—and to teach him his proper relation to the larger complex of the state of which he finds himself a part. Jaeger shows that for Plato philosophy is a part of culture, *Paideia,* and that his starting-point was the idea of the state, which was crumbling in his day and which he sought to restore. Our humanist is no blind partisan of the Greeks to the neglect of those who caught the torch from their hands. His mind is stored with good literature of various sorts. He writes of the Roman authors with penetrating sympathy and many a happy phrase. Goethe and Dante, Erasmus and Ibsen, Anatole France and Galsworthy furnish him with apt allusions. His humanism, like Cicero's, is not hostile to religion. He recognizes the contribution made by both Protestantism and Catholicism to the culture of our day. These broad outlooks, these broad sympathies, are the natural outcome, if not the immediate goals, of the humanist's essential quest, the striving to teach himself "come l'uom s'eterna".

Now the road to this goal lies, for one who follows the arguments of Professor Jaeger, in a revival of the Classics in our schools and colleges. No courses of "orientation" can give their meaning. These lead too often not to a sunrise but a sun-set of intelligence. Young minds not burdened with much information will take the generalizations of their teachers—both the happy and the unhappy generalizations—like dates and facts to be recorded in note-books and learned by heart. The learner will be initiated into humanism not by following a general course on ancient literature presented in translations—though something of course is gained in this way—but by making friends with a few of the best writers of Greece and Rome in their own works. He will feed on the beauty of these works, and he will see how the Romans, though lacking the genius of the Greeks, understood the principles of their culture and applied them to the moulding of their own ***humanitas.***

There is hope, therefore, that with such models at hand any people today, our own for instance, may repeat the experience of the Greeks in a new effort to know itself, to understand the relation of the individual to the state and thus to establish those social values which paedogogical theorists set as a goal in their illusory "integration" of studies. It would be a landmark in the progress of education if some philanthropist, while philanthropists still exist, would boldly establish a novel sort of college, novel because old-fashioned, small and select, founded on the principles which Professor Jaeger proclaims and which could be further developed into a well-balanced programme of liberal training adjusted to the intellectual needs of our times.

For our colleges are at the cross-roads. Here they are controlled by glittering theories and survey courses; there they are committed to a variegated specialization that produces little economists, little scientists, little Classicists, who cannot speak a common tongue. Specialization, and the more of it the better, is the function of the university or the technical school. But culture is the province of the college, and culture cannot be sniffed in with the air, or from the talk of a club-table. The programme must be definite and for all. Our larger collegiate institutions must rediscover this principle, however it be applied. Meanwhile it would be highly beneficial to learning and to public life, if a few small colleges could return to the ways of our forefathers with a new goal in sight. Nothing could better fertilize our democracy than the flow of a small but steady stream of intellectual aristocracy, the highmindedness, μεγαλοψυχία of Aristotle—mingled, in Jaeger's fashion, with a bit of Christian humility. It would be pleasant to contemplate another Renaissance for just a few.

E. K. RAND

HARVARD UNIVERSITY

G. Pico della Mirandola. Sincretismo religioso-filosofico, 1463-1494. Per EUGENIO ANAGNINE. Bari, Gius. Laterza & Figli, 1937. Pp. viii, 277.

An earlier study of Pico by Anagnine appeared in 1934 in the *Revue d'histoire de la philosophie et d'histoire générale de la civilisation.* The present book is a fuller and more thorough exposition of the formation and development of Pico's thought, and analyzes the syncretism of this learned Renaissance philosopher who, in an environment usually considered semi-pagan, 'philosophized piously', and tried to harmonize Platonic, Aristotelian, Neopythagorean, Chaldaean, Persian, Jewish, and Arabic thought, the Orphic and Hermetic theosophies, and natural magic—all these on a basis of Neoplatonism, and all alike in accord with Christian revelation. Anagnine skilfully weaves together the main threads of doctrine which, in the design of Pico's speculative thinking, bear testimony to the one supreme and certain truth.

The freshest contribution is supplied by the longest chapter in the book—on Jewish influences. Pico thought that the Jewish Cabbala offered the best proof of the Christian mysteries. Anagnine goes to original Hebrew sources, and as a result this chapter provides both a lucid analysis of Cabbalism and the best treatment we now have of Pico's relations to the Cabbala. New light is thrown upon the origins of the Christian Cabbala, which enjoyed such wide influence in the following century.

Anagnine's interpretations are in the main acceptable. The present reviewer would wish only that more consideration had been given to Pico's hermeneutical method, especially in comparison with the traditional methods of Scriptural exegesis.

The product of a cultural *milieu* that was both mediaeval and humanistic, Pico here appears as an heir of the traditions, yet as an independent thinker, with an eager spirit of research. Schoolman, he was yet an individualist; mystic, he yet had confidence in logic and philosophy.

HARRY CAPLAN

CORNELL UNIVERSITY

Die Geschichte der christlichen Philosophie. Von ÉTIENNE GILSON und PHILOTHEUS BÖHNER. Lieferung I. Die Geschichte der patristischen Philosophie. Paderborn, Ferdinand Schöningh, 1936. Pp. 240.

This work, the first part of which is here offered, is intended to be a handbook for students. Two more parts, concerned with early and late scholasticism, will follow. The complete work will thus cover the development of Christian philosophy from its origin to the late Middle Ages. The aim of the authors is to lead the student to read the sources. The views of each philosopher from Justin Martyr to Boethius are systematically summarized in the form of a statement of his dominant ideas, reinforced by a constant reference to the philosopher's writings. Each exposition is then concluded by an "evaluation", and by a short selection from the philosopher's work. The evaluation is made in the light of the essential features of a Christian philosophy, which are listed at the beginning of the book. Probably the most important of these characteristics runs as follows: "A Christian philosophy never stands in open opposition to the clearly formulated faith of the Christian Church."

To state the contents of this book exhibits its considerable value. Some may think that the meaning of a Christian philosophy as stated in the list of characteristics is too dogmatic and authoritarian. But the definition does not interfere with an objective exposition of the various philosophies, and lends precision to the evaluation. The summary of Augustine's views is, properly enough, the longest (156-221), and covers the whole extent of his philosophy clearly and compactly. As an

illustration of the authors' brevity and exactitude, one might observe particularly the exposition of Augustine's doctrine of intellectual knowledge and truth (177-180). In these few pages the argument leading up to the doctrine of illumination, so famous later in Franciscan philosophy, is clearly expressed.

J. R. Cresswell

West Virginia University

Literary Criticism in Antiquity. A Sketch of its Development. Volume 1, Greek; Volume 2, Graeco-Roman. By J. W. H. Atkins. Cambridge, At the University Press, 1934. Pp. xii, 199; xiii, 363.

This belated review of a good book must not obscure its goodness. The work is thorough, well documented, and perspicuous. The style is full, or over that, but flows, and makes good reading. The two volumes are separately indexed. The part on Greek criticism has more interest because the subject of its fellow, while more is known about its relations, has less vitality. Plato is more vital than 'Longinus', whose vitality owes most to Plato. The interrelations between Greek and Graeco-Roman writers are well handled. We know too little about the debt Greek critics owed to one another; Finsler thinks that the *Poetics* of Aristotle is mostly a reaction against statements in the writings in Plato; Gudeman takes issue with that notion in a valiant effort to explain the many references to other authors and writings that we find in the *Poetics*, and the absence of all reference to Plato as a literary critic.

For modern philosophers the sections of the present work on Aristotle and Plato are likely to have most value. More, I think, could be inferred from those two writers about the poet Agathon as critic; Mr. Atkins has begun to open up this subject. And what he says of Aristophanes in relation to Euripides is better than the traditional notion that the comic poet, who knew much of Euripides' verse by heart, was violently opposed to him. Aristophanes, like many another, ranked Sophocles (not Aeschylus, as Mr. Atkins thinks, I 30-2) first among the three, yet occupies himself in the main with the dramas of Euripides. Aristophanes, like Plato, since both were trained in music, might easily in youth have taken part in certain choruses of Euripides and Sophocles, as also in those of Aeschylus when his dramas were in later days repeated. On page 17 of Volume I Mr. Atkins says that no traces of the earlier treatises on words have come down; if there were no traces whatsoever, we should not know of anything to track. If I understand matters aright, there are some traces of the works in question in the dialogues of Plato and Aristotle's *Rhetoric*. My friend and pupil, Dr. John M. Raines, believes that we learn something of the nature of those treatises from Aristophanes' *Clouds*, 636-94.

In the second volume I could point out much of great significance to all who wish to bridge the gap between philosophy and the study of letters, but will not go on beyond commending the sections on Dionysius, Quintilian, and 'Longinus' to all readers with a philosophic interest in Classical antiquity.

No other work that is known to me uncovers so much as this of the field it has entered. On the whole it unifies what have been hitherto uncorrelated fields.

LANE COOPER

CORNELL UNIVERSITY

Nicolai de Cusa: Opera omnia. V. Idiota de sapientia, de mente, de staticis experimentis. Edidit LUDOVICUS BAUR. Lipsiae, in aedibus Felicis Meiner, 1937. Pp. xxxii, 150.

This is the third volume so far issued of the great new edition of Nicholas's *Works* which is appearing under the auspices of the Heidelberg Academy. Volumes I and II were noticed in this *Review* for July, 1934 (XLIII 414). The editorial work on the present volume, performed by Professor Ludwig Baur, of Breslau, is commensurate in care and excellence with that on the earlier volumes. Some twenty-six manuscripts have been collated to constitute the text and the variant readings noted in an *apparatus criticus*. The general study of the filiation of manuscripts, which Dr. Raymond Klibansky announced in the editorial preface of his edition of the *De docta ignorantia*, is still unpublished. Professor Baur, in his essay on the manuscripts of the four dialogues included here, has followed the general lines of relationship already mapped by Dr. Klibansky. The two editors have collaborated by letter, and the later publication of Dr. Klibansky's study is again promised.

The four dialogues contained in this volume were written between the middle of July and the middle of September, 1450. It is not quite certain that Nicholas himself combined them under the single title, *Idiota*, though there is warrant for the combination in manuscripts copied within a year or two of the date of composition. They are united by the fact that in them Nicholas chose to speak through an interlocutor designated as "the simpleton", an ironical reference to the sophistication of the orator and the scholastic philosopher, who are the other chief speakers. The fundamental philosophical idea is that of the "learned ignorance", the ineffability of the divine nature. In addition, the simplicity of mind that Nicholas commends includes the willingness to learn by experience from the book of nature. The *De staticis experimentis* urges the value of empirical and quantitative methods, and specifically the use of the balance as an instrument of scientific study.

These books have a certain extraneous interest because they were

written at one of the turning points in Nicholas's career. A few weeks before he began writing he had been elevated to the See of Brixen, and the last of the four dialogues was hardly finished before his appointment as Papal Legate to Germany opened his labors as a reformer of monastic life. The two dialogues, *De sapientia*, are interesting also because they formed the model for a famous forgery, the spurious dialogues, *De vera sapientia*, which for centuries were attributed to Petrarch. The origin of this forgery is discussed in an appendix to the Preface.

It will be recalled that this edition of Nicholas's works was first announced in 1928 under the general editorship of Professor Ernst Hoffmann, of Heidelberg. It is supplemented by a series of *Cusanus-Texte* and *Cusanus-Studien*, published in the *Sitzungsberichte* of the Heidelberg Academy and issued separately by Winter. All this work, without exception, exemplifies the highest standards of historical and philosophical scholarship.

George H. Sabine

Cornell University

Authority and the Individual. Harvard Tercentenary Publications, Vol. II. By various authors. Cambridge, Harvard University Press, 1937. Pp. x, 372.

Independence, Convergence, and Borrowing in Institutions, Thought, and Art. Harvard Tercentenary Publications, Vol. III. By various authors. Cambridge, Harvard University Press, 1937. Pp. x, 272.

The Tercentenary of Harvard College was celebrated in a manner truly appropriate: by an assemblage of famous scholars who contributed papers to four symposia, each devoted to a central problem. These papers in turn have been made available in four books, concerned respectively with biology, law, social studies, and the humanities. The last two of these books are our concern here.

Perhaps the most felicitous expression of the central theme running through these two volumes is epitomized in Gilson's earnest contention that modern scholars have but one defense "against the encroachments of the totalitarian state" which is naught else but "a powerful revival of the medieval feeling for the universal character of truth". With some misgivings, no doubt, the planners of the Tercentenary celebration prepared their blueprint, although it must have been with high hopes that they drew the lines which indicated how the whole would be integrated into a unified intellectual structure. Now the edifice is before it and a fair verdict is that the building was well conceived and ably executed. For what could have been a more fitting way to celebrate the Tercentenary of New England's first scholarly fruits than re-emphasis of the nexuses which tie together the seemingly sectionalized studies of specialists? What more appropriate than

the deployment of thirty-two scholars, armed with particularized knowledge, for an attack upon two urgent problems at once theoretical and eminently practical?

The first of these problems, as eternal as it is intransigent, has by the unintended conspiracy of social contradictions become omnipresent and most dangerous. From the tomb wherein the nineteenth-century thinkers laid, as they thought forever, the troublesome problem of the relation of the individual to authority has arisen not a fleshless ghost to haunt the cloistered scholar but a powerful demon with voracious appetite who has already destroyed many a fair orchard of the last century's planting. Old barriers will not hold, for the hunger for authority will not be halted by the logic of *laissez-faire*. On this point the economists, the political scientists, the sociologists, and the philosophers agree. W. C. Mitchell confidently predicts "more rather than less governmental planning in the calculable future"; while D. H. Robertson can but quaintly ask the advocate of "energetic state action" to consider the effects of their acts upon the world community. D. B. Copland, even though he sees clearly the limitations of the state as an entrepreneur, has fewer fears of increased authority and is willing to revise the old aphorism to read that "he who is *not* a socialist at forty has no head". W. E. Rappard is less sanguine: in his opinion, economic nationalism necessarily subordinates the individual's wish for economic welfare to the state's desire for military power.

Must this encroachment of the state upon the libertarian domain of the individual necessarily increase or does it merely betoken a temporarily dominant trend in the process of social change; and if so, are there not stabilizing forces? The historical answer is affirmative as J. H. Clapham proves for England since 1867, wherein the trend toward increased state action was indisputable but where differences of opinion as to "time, pace, extent, and method of interference" with individual liberty led to compromise. Conservative factors may therefore retard the growth of authority but they are, as C. M. Andrews convincingly demonstrates, relative to time. Nor is the re-assertion of authority a mere recrudescence of *étatism;* the cultural milieu, as R. M. MacIver shows, has changed so greatly "that authority must, as never before, specify its objectives and justify them in the eyes of the masses". Authority may, of course, be either an external force or something widely shared; the latter variety, John Dewey insists, must be the goal, and he therefore looks forward hopefully to a world controlled by "collective intelligence".

Granting that the increasing complexity of large societies demands larger governmental duties, the technical problem of the "place and function of authority" at once emerges. For the United States, Corwin has an unambiguous answer: the Constitution as a symbol must give way to the Constitution as an instrument capable of guaranteeing the

well-being of the many. These concrete recommendations contrast strikingly with Hans Kelsen's analysis of the functions of government in the abstract realm of the Pure Theory of Law. For pure theory has no favorites; it explores all the possible situations, both static and dynamic, which represent centralization or decentralization of governmental functions. Going back to Greece, Werner Jaeger sees in the growth of authority a primary reason for Plato's distinction between the real and the ideal state, a distinction which allowed the incurable Greek individualist to withdraw from political life "into a merely spiritual sphere". Corrado Gini finds in sociological determinism a generalized explanation for the growth of governmental functions; the ultimate repository of authority, in his view, must be the state, and those nations which have reached state authoritarianism he alleges to be "more prosperous and successful".

But the conflict between authority and the individual is not merely a governmental problem; it pervades all intellectual activity. As Friedrich Meiniche points out, it lay beneath the eighteenth-century controversy between the advocates of classicism and romanticism, and Paul Hazard forcefully illustrates this antithesis in his essay on L'Abbé Prévost. In the history of American literature, on the other hand, theological authoritarianism took the place of European classicism, and H. M. Jones has shown how the so-called American romanticism actually drew on the classical Enlightenment for some of the weapons with which it defeated ecclesiastical authority. Yet in music the whole situation is apparently reversed; the reverence for the classics, says E. T. Dent, is a modern doctrine which has replaced an eighteenth-century preference for novel and genuinely individualistic music.

The second volume attempts to show concretely how knowledge grows and spreads, and it raises in several specific contexts the difficult question of the relative forces of independence, convergence, and borrowing. It begins appropriately with V. G. Childe's interpretation of diffusion, which marshals archeological evidence to prove the extent of prehistoric trade and intercourse. Botany supplies the touchstone for the next inquiry, wherein E. D. Merrill explores the territorial diffusion of foods and fibers. Then M. I. Rostovtzeff traces the odd history of a unique method of depicting motion in art, the flying gallop; while Eduard Norden studies the literary changes in the *carmen arvale* which Roman priests sang to propitiate their gods.

With great lucidity, the next four essays appraise the borrowed, the novel, and the synthetic qualities of Roman law (Leopold Wenger), French law in Algeria (René Maunier), Jewish folklore (Louis Ginsberg), and early Christianity (C. H. Dodd). Innovation, experiment, synthesis: here is the general sequence, whether in jurisprudence, colonial administration, myth-making, or the formulation of creed; in a word, then, these essays are concrete examples of human inven-

tions. What did 13th-century England invent governmentally? A pretty large measure of public well-being is F. M. Powicke's answer. And what did medieval men as a group invent? A capacity "to think and imagine in unbroken patterns and whole schemes", says Henry Osborn Taylor; virtually a capacity to make truth out of artistic error, says Adolph Goldschmidt; a unity of the creative arts, says Joseph Bédier. But Gilson's answer is even more succinct: what the medieval world possessed and what the modern world desperately needs he describes as a "vivid feeling for the universal character of truth" wherein alone is to be found real intellectual unity.

The cultural interactions, so clearly revealed in these pre-modern studies, find further concrete confirmation in the last group of essays devoted to "East and West". Hu Shih shows how China borrowed Buddhism and made it more Chinese than Indian; by secularizing a borrowed religion, the Confucianist scholars universalized it. But India and China are both Oriental. What about the cultural relations between the eastern and western peoples today? Obviously the East has borrowed. Has it truly incorporated these borrowings so that a reasonably sound culture may be expected? Masaharu Anesaki realizes clearly that there is an inherent incompatibility between Western technology and Eastern philosophical preconceptions. For all the problems of cultural conflict which the Harvard lecturers studied, for all but this one history has relentlessly found some solution. It will do the same for Anesaki's problem. But Time guards his strategy scrupulously and what lies in his inscrutable mind can be very faultily guessed. Which is to say that chapters in the history of invention have logical meaning when read forward, after they are reasonably complete.

E. A. J. Johnson

New York University

DESCRIPTIVE NOTICES

Bibliographie des œuvres de Leibniz. Par ÉMILE RAVIER. Paris, Félix Alcan, 1937. Pp. vi, 704.

Scripsi innumera et de innumeris sed edidi pauca et de paucis. M. Ravier's *Bibliographie* provides the ocular evidence for at least the first clause of this sentence, which Leibniz wrote in a letter to Jacques Bernoulli; the second clause is at least relatively true, in view of the amount that Leibniz published in his lifetime as compared with the amount of his work published posthumously. The bibliography lists only works that have so far been published. The entries are arranged by dates, in the first part those works published by Leibniz himself, his signed articles in the learned journals, and his anonymous reviews; this part concludes with a list of those works published in Leibniz's lifetime but not by himself. In all there are three hundred and twenty-five items in this part. The second part lists by centuries the publications since Leibniz's death, bringing the total up to eight hundred and eighty-two entries. The contents of the large editions of his works are given in an appendix. The bibliography is adequately indexed. The book will be a useful tool for anyone engaged in intensive work on Leibniz. Unfortunately, the paper on which it is printed is so poor that its physical life, despite the incredible labor that its compilation represents, will not be very enduring.

GEORGE H. SABINE

CORNELL UNIVERSITY

Die Erkenntnisbeziehung. Von KARL BOLDT. Beiträge zur Philosophie und ihrer Geschichte, 5. Tübingen, J. C. B. Mohr (Paul Siebeck), 1937. Pp. 48.

By means of a consecutive argument, remarkable for its abstractness, Karl Boldt compresses into half a hundred pages a systematic classification of actual and possible sciences, a complete though schematic theory of knowledge, and the outlines of a metaphysical theory based on that of Leibniz. The central contention is that the cognitive relation is not everywhere identical but varies systematically with the different levels of scientific thought. The system of subject-object relations thus won permits the formulation of a generalized conception of the cognitive relation, which is taken to imply the existence of monads as the ground of its possibility.

STREET FULTON

MCGILL UNIVERSITY

Cartesio: Principii di filosofia. Libro primo. Introduzione e commento di ADOLFO LEVI. Napoli, Lugi Loffredo, 1937. Pp. liv, 74.

Cartesio: Discorso sul metodo. Introduzione e commento di ADOLFO LEVI. Napoli, Luigi Loffredo, 1937. Pp. liv, 110.

The translator of these two texts has rendered valuable service to the historico-critical study of Descartes. In the Preface, which is the same for both texts, the explanatory approach is made from the mathematico-physical aspect of the Renaissance. Careful treatment has been given to Descartes' distinctions between formal and physical analysis. The criterion of clearness

is discussed in terms of the above distinctions, and the function of intellectual intuition as the prius of deductive judgment is related to the special methodology. This leads to a careful elaboration of the function of the *cogito, ergo sum,* which is referred to the ***lumen naturale*** of the Augustinian tradition. The reader may infer that Descartes' mastery of analytic method was far in excess of his assimilation of the traditional metaphysics and theology which influenced his wider speculations.

GEORGE G. LECKIE

ELMIRA COLLEGE

Science and Common Sense. An Aristotelian Excursion. By W. R. THOMPSON. New York, Longmans, Green & Co., 1937. Pp. viii, 234.

The itinerary of Dr. Thompson's excursion is indicated quantitatively by the Index, where Aquinas with fourteen references is led only by Maritain with fifteen. The argument for common sense ("Only observation and experiment can tell us what really happens") is subordinate to an argument from common sense. In respect to the latter, the goal in natural science is "a corpus of permanent and immutable truth". The coincidence of laws of reason, expressed in formal logic, with the natural order of forms, natures, or "vital ideas" has an ultimate explanation and end: "the *Intelligible,* which is convertible with *Being*". An Aristotelian-scholastic epistemology is maintained throughout the book. This doctrinal empiricism is Dr. Thompson's version of common sense, and his thesis is that science must be compatible with Aristotelian realism.

EDWARD W. STRONG

UNIVERSITY OF CALIFORNIA

Aspects of Science. By TOBIAS DANTZIG. New York, The Macmillan Company, 1937. Pp. xiv, 286.

This book lies somewhere between a popularization of science and a philosophical analysis of some of the pervasive concepts of the sciences. The unifying principle—not always too apparent—seems to be the relativity of all scientific conclusions and the futility of a search for an absolute. Topics range from historical studies of Galileo's repudiation of the heliocentric theory to philosophical analyses of the concepts of rigid standards and of signals. Very few of the author's ideas are novel, but they are interestingly and popularly, if at times somewhat inaccurately, stated. The book will repay reading, not as affording an important solution to any basic metaphysical problems, but as revealing the more or less random thoughts of a scientific man beyond the confines of his science—thoughts which, by and large, make good sense.

A. CORNELIUS BENJAMIN

UNIVERSITY OF CHICAGO

L'expérience de l'espace dans la physique contemporaine. Par GASTON BACHELARD. Paris, Félix Alcan, 1937. Pp. iv, 144.

Le temps. Par MICHEL SOURIAU. Paris, Félix Alcan, 1937. Pp. iv, 180.

The realistic use of inert space as a principle of individuation fails to account for the unstable, indeterminate nature of space in the quanta

physics of Heisenberg, Schroedinger, Dirac, deBroglie, Destouches, and others. Nor can the conventions of symbolic formalism bridge the gap between the passive continuity of our simple, macroscopic, spatial perceptions and the active discontinuities of the more complex and precise statistical descriptions of micro-physics (73). Some sort of idealistic (43) and dialectical (69) interpretation of the mathematical operators in present day physics is suggested by Bachelard's further analysis of mathematical operations as "abstract-concrete" mental acts (98, 116 f.) We must substitute "the positivism of the mind for the positivism of things, the positivism of mathematical laws for the positivism of empirical laws, the Platonic realism of operative ideas (*idées opérantes*) for the naive realism of things operated on (*choses opérées*)" (99). In his attempt to reduce all relations of space to intuitions of neighborhood (*voisinage*) (131), Bachelard confounds space with place, for it is the place of an electron that is indeterminate and not the type of space used in describing its motions.

Unlike Bachelard's defense of the idealistic interpretation of science against realistic and formalistic arguments, the essay of Souriau on time simply foists upon the recent findings of science a Bergsonian spiritualism without any careful criticism of opposing arguments. He leans mostly on the views of idealists like Jeans, Eddington, Whitehead, Brunschvicg, Meyerson, and, above all, Bergson. "The symbols of time are those masks which we have to use in order to cover the fissures of the surface of a precarious universe of objects" (151). The book is written in the embellishing style of literary metaphysics which Bergson has left or preserved as a tradition for so many French writers on philosophy today. The aim of such lyrical intuitionism as Souriau displays is apparently "the abdication of conceptual thought" (160) and the regarding of "any attempt to prepare for the future as some sort of sinister farce" (176). Psychologisms abound, *e.g.*, in the reduction of physical and historical time to the time of consciousness (26), and in the temporalization of mathematical demonstration (107). There is an entire system of metaphysics in this essay on time which offers answers to all the problems of philosophy, and probably will provoke many more doubts.

PHILIP PAUL WIENER

COLLEGE OF THE CITY OF NEW YORK

Lawlessness, Law and Sanction. A dissertation. By MIRIAM THERESA ROONEY. Washington, The Catholic University of America, 1937. Pp. 176.

This is a restatement of the Scholastic conception of legal sanction and a criticism of the underlying assumptions and of the presumed effects of Bentham's, Maine's, and Holmes's theories of sanction, not in the light of empirical data but of the Scholastic presuppositions concerning the nature of man and of the universe. "Erratic" philosophies and behavioristic psychology are jointly held responsible for the tendency to minimize individual accountability for conduct and for the neglect of ethical education—the main causes of the progressive decline (since the thirteenth century) of law-observance. The study abounds in general allegations about matters of fact that no careful scholar would make without adducing evidence.

H. JANZEN

HAMILTON COLLEGE

A College Professor of the Renaissance. Lucio Marineo Siculo among the Spanish Humanists. By CARO LYNN. Chicago, The University of Chicago Press, 1937. Pp. xii, 302.

In the golden days of the Renaissance, when the title of "professor" was more esteemed than was that of "count", Marineo the Sicilian taught the classics at Salamanca. His book, *In Praise of Spain,* brought him to the attention of Ferdinand and Isabella, who gave him at their court a position combining the duties of royal historiographer, Latin secretary, and tutor in the palace school. His epistles, on which Professor Lynn has drawn copiously, have caused him to be remembered by posterity, though his more formal works, histories and grammars, have fallen into neglect. The letters, though more stilted and less alive than are those of some other humanists, do give now and then bright glimpses of university and court life, as well as portraits of some interesting persons. Most of these persons are identified by the author; but not all of them. The "Colón" mentioned on page 81, was probably Ferdinand Columbus, the book-collecting son of the explorer.

PRESERVED SMITH

CORNELL UNIVERSITY

Reality and Value. An introduction to metaphysics and an essay on the theory of value. By A. CAMPBELL GARNETT. New Haven, Yale University Press 1937. Pp. 320.

This book opens with a chapter on epistemology advocating a type of Critical Realism akin to Norman Kemp Smith's. Four chapters of so-called metaphysics follow. These consist of an analysis of the structure and process both of the act of experience and of the object of experience. The act and object are finally grounded, in a manner somewhat reminiscent of Fichte, on an Eternal Will and an Eternal Object. The six succeeding chapters deal with values. Values are accorded an objective being and a subjective derivation. "Our subjective activity strikes them out of an objective world" (155). These six chapters contain many keen observations, particularly concerning the twofold aim involved in all value-experience, but the halo of romantic metaphysics surrounding them and to the fore again in the Conclusion, is something, I believe, which one may take or leave, as one chooses. Written clearly, this book is an able piece of eclectic philosophizing that borrows ideas from Aveling, Paton, Moore, Stout, Alexander, Baillie, Hobhouse, Ward, Pringle-Pattison, and many others, and weaves them into a sober medley not without an individual form of its own. The advanced undergraduate and the intelligent layman for whom the book is written will be made familiar with a large mass of recent philosophical writing especially of British origin, and be led to consider many questions and many important ideas at least on the philosophical problems of knowledge and value.

D. W. GOTSHALK

UNIVERSITY OF ILLINOIS

Mach's Empirio-Pragmatism in Physical Science. By CARLTON BERENDA WEINBERG. Privately printed, 1937. Pp. xii, 122.

Dr. Weinberg's essay centers on Mach's radical empiricism and pragmatic nominalism but includes enlightening discussions of Mach's scientific

contemporaries The essay is notable for its detailed analysis of method through examples and illustrations drawn from scientific work. Description, as the business of science, is shown to involve a problem of correlation between perceptual data and conceptual formulae. Measurement affords a solution of translation, but Mach vacillates between a theory of metrical correspondence and a theory of arbitrary and conventional constructions. By the economy principle, the rôle of mathematics and the use of hypotheses are determined by expediency and simplicity. Dr. Weinberg concludes that Mach's bio-genetic account of thought in terms of survival value rejects empiricism when the economy principle is regarded as a law of nature and not as a methodological rule. Critically and historically, the essay is a valuable contribution to the literature on scientific method.

EDWARD W. STRONG

UNIVERSITY OF CALIFORNIA

La méthode dans la mécanique des quanta. Axiomatique, déterminisme et représentations. Par M. RENÉ DUGAS. Paris, Hermann & Cie, 1935. Pp. 62.

This brochure contains a brief account of the work of Bohr, de Broglie, Heisenberg, Dirac, and Schrödinger on the new quantum mechanics. It includes a concise but clear representation of Heisenberg's principle of uncertainty. Of greatest interest to the philsophical reader is, perhaps, the terminal section on the epistemological significance of Heisenberg's principle and related discoveries. According to the author the two essential problems are: (1) whether the principle of uncertainty implies an ultimately non-causal world, and (2) whether and to what degree waves and particles can yield an image of reality. He recognizes two possible attitudes toward the first problem; namely, that the uncertainty is due to the unavoidable physical effects of experiment or that it is an ultimate fact of nature. He also emphasizes the tentative character of the present formulation of quantum mechanics in respect of the second problem.

JULIUS R. WEINBERG

CORNELL UNIVERSITY

La prévision historique dans la nature. Par J. DELEVSKY. Paris, Hermann & Cie, 1935. Pp. 54.

Historical prediction differs from ordinary prediction in the sciences. Physical laws, because they do not vary with the time, do not express historical fact, nor do the events described solely in terms of such laws have a history. Historical prediction thus is the prediction of single events or groups of events occurring at a given point in the temporal series. The prognosis of a physician and the forecast of the meteorologist are illustrations of this type of prediction, but much of astronomy, geology, and biology is devoted to predicting the occurrence of events at given times. After illustrating his discussion by many examples from these sciences, the author concludes that any historical prediction has an inherently limited probability because it cannot be based on any exact repetition of the characters of phenomena. His distinctions between mathematical, philosophical,

and historical probability do not seem to be based on any *fundamentum divisionis*, and it can be effectively argued that the three kinds differ as a matter of emphasis merely.

JULIUS R. WEINBERG

CORNELL UNIVERSITY

Le développement du Cercle de Vienne et l'avenir de l'empirisme logique. Par OTTO NEURATH. Paris, Hermann & Cie, 1935. Pp. 60.

The author of this short history of the Vienna Circle explains why Vienna was an historically advantageous position for the beginnings of logical empiricism, and then proceeds to trace its background from Ockham to Russell. Some of this account is familiar but not all of it will be accepted as history. For example, it is questionable to regard Ockham as the precursor of modern scepticism, and it is difficult to find in Machiavelli the beginnings of a scientific study of society. On the other hand, the author is careful to indicate that many philosophers whose work led to the formation of contemporary empiricism were unconscious of the logical implications entailed by their doctrines and discoveries.

JULIUS R. WEINBERG

CORNELL UNIVERSITY

Bernard Bosanquet's Philosophy of the State. By BERTIL PFANNENSTILL. Lund, C. W. K. Gleerup, 1936. Pp. iv, 324.

This well-arranged and admirably written dissertation gives a very careful and accurate analysis of Bosanquet's political philosophy, including an account of its historical position in the idealist tradition. It considers also the chief criticisms that have been directed against Bosanquet. What is lacking in it is chiefly a critical estimate of his place in the Liberal (or Conservative) *milieu* of his day. Apparently the author does not share the feeling, which I fancy would be generally entertained by English and American readers, that Bosanquet's political philosophy is already definitely "dated".

GEORGE H. SABINE

CORNELL UNIVERSITY

Le sens de l'existence dans la poesie populaire roumaine. Par LIVIU RUSU. Paris, Félix Alcan, 1935. Pp. 122.

M. Rusu, having made many studies in the psychology and philosophy of artistic creation, here applies his theory to a fresh content. He says that Roumanian popular poetry, like all poetry, takes its rise in profound spiritual disquietude, but that the serene and gracious surface-form of this poetry seems to symbolize a glossing over of an inner trouble which has not actually taken place. These popular poets feel characteristically two moods—despairing melancholy and ennui—in facing the tragic inexorability of existence. Their deepest consolation comes in expressing a oneness with nature.

KATHARINE GILBERT

DUKE UNIVERSITY

Vers une philosophie de l'esprit ou de la totalité. Par HENRI L. MIEVILLE. Paris, Félix Alcan, 1937. Pp. 296.

This book offers a liberal interpretation of the fundamental experiences of religion. The author rejects the crude conception of God as creator and also the idea of immortality in the sense of an endless individual existence. The theory which affirms the latter he calls a false personalism. The author quotes from Schiller: "Vor dem Tod erschrickst du? Du wünschest unsterblich zu leben? Leb' im Ganzen! Wenn du lange dahin bist, es bleibt." There is a mystery in our double existence: we are separate beings and at the same time we participate in the Thought which thinks the universe. This Thought is God. To find him we must descend into our own soul; then we find that the Thought which lives in ourselves unfolds itself as the eternal growth of the universe. An atheist is a person who cannot find God in the depth of his own being. Even some "believers" cannot do that. There are many atheists among the believers (*croyants*), just as there are many believers among those who call themselves atheists.

PETER EPP

OHIO STATE UNIVERSITY

A Declaration of Interdependence. By H. A. OVERSTREET. New York, W. W. Norton & Company, Inc., 1937. Pp. xii, 13-284.

This volume is an attempt to show how intimately the welfare of each one of us is bound up with the welfare of society as a whole, and to rephrase the democratic dogma in terms of this interdependence rather than in the familiar terms of eighteenth century individualism. In the course of his argument the author discusses the particular astigmatisms of individualistic democracy, and offers a few constructive suggestions for modernizing the democratic machinery. Professor Overstreet has a facile pen and an agile mind, but he seldom keeps them on one subject long enough to get beneath the surface.

CHARLES M. WILTSE

WASHINGTON, D.C.

The following books have been received:

Experience and Prediction. An Analysis of the Foundations and the Structure of Knowledge. By HANS REICHENBACH. Chicago, The University of Chicago Press, 1938. Pp. x, 412.

Towards an Objective Ethics. By GEORGE RAYMOND GEIGER. Yellow Springs, The Antioch Press, 1938. Pp. x, 88.

The Degrees of Knowledge. By JACQUES MARITAIN. Translated from the second revised and augmented French edition by BERNARD WALL and MARGOT R. ADAMSON. New York, Charles Scribner's Sons, 1938. Pp. xviii, 476.

Diderot, Interpreter of Nature. Selected Writings. Translated by JEAN STEWART and JONATHAN KEMP. Edited, and with an Introduction, by JONATHAN KEMP. New York, International Publishers, 1938. Pp. viii, 358.

A Democratic Philosophy. By WENDELL THOMAS. New York, Correlated Enterprises, 1938. Pp. 148.

The Intelligent Individual and Society. By P. W. BRIDGMAN. New York, The Macmillan Company, 1938. Pp. x, 306.

Naturalism in American Education. By GEOFFREY O'CONNELL. New York, Benziger Brothers, 1938. Pp. xxvi, 286.

Proceedings of the American Catholic Philosophical Association: Philosophy of Education. Washington, The Catholic University of America, 1937. Pp. iv, 232.

The Philosophy of Law of James Wilson, Associate Justice of the United State Supreme Court, 1789-1798. A study in Comparative Jurisprudence. By WILLIAM F. OBERING. Washington, The Catholic University of America, no date. Pp. 276.

History of Mediaeval Philosophy. Volume II: The Thirteenth Century. By MAURICE DE WULF. Translated by ERNEST C. MESSENGER. Third English edition, based on the sixth French edition. New York, Longmans, Green and Company, 1938. Pp. xii, 380.

The Clandestine Organization and Diffusion of Philosophic Ideas in France from 1700 to 1750. By IRA O. WADE. Princeton, Princeton University Press, 1938. Pp. xii, 330.

An Abstract of a Treatise of Human Nature, 1740. A Pamphlet hitherto unknown. By DAVID HUME. Reprinted with an Introduction by J. M. KEYNES and P. SRAFFA. Cambridge, The University Press, 1938. Pp. xxxii, 32. (New York, The Macmillan Company.)

In the Spirit of William James. By RALPH BARTON PERRY. Powell Lectures on Philosophy at Indiana University. Edited by DANIEL S. ROBINSON. New Haven, Yale University Press, 1938. Pp. xii, 212.

On the Economic Theory of Socialism. By OSKAR LANGE and FRED M. TAYLOR. Government Control of the Economic Order, Volume 2. Edited by BENJAMIN E. LIPPINCOTT. Minneapolis, The University of Minnesota Press, 1938. Pp. viii, 144.

The Nature of Self. By A. C. MUKERJI. Allahabad, The Indian Press, Ltd., 1938. Pp. xii, 360.

Perception and Aesthetic Value. By HAROLD NEWTON LEE. New York, Prentice-Hall, Inc., 1938. Pp. xii, 272.

A History of Chinese Philosophy. The Period of the Philosophers. (From the Beginnings to circa 100 B.C.) By FUNG YU-LAN. Translated by DERK BODDE. Peiping, Henri Vetch, 1937. Pp. xx, 546; 28.

Athènes et Jérusalem. Un essai de philosophie religieuse. Par LÉON CHESTOV. Traduit du russe par BORIS DE SCHLOEZER. Paris, J. Vrin, 1938. Pp. xxxvi, 5-470.

La question platonicienne. Étude sur les rapports de la pensée et de l'expression dans les dialogues. Par RENÉ SCHAERER. Neuchatel, Secrétariat de l'université, 1938. Pp. 272.

La formation de l'esprit scientifique. Contribution à une psychanalyse de la connaissance objective. Par GASTON BACHELARD. Paris, J. Vrin, 1938. Pp. 258.

Le gouvernement de soi avec le secours des moralistes. Par JEAN ROCHE. Paris, Félix Alcan, 1938. Pp. iv, 464.

Un ordre corporatif français. Par GEORGES COQUELLE-VIANCE. Paris, F.N.C., no date. Pp. 112.

Marxisme et famille. Par A. ANCEL. Paris, Féderation Nationale Catholique, 1938. Pp. 96.

Le paysan russe sous le régime des soviets, vingt ans durant 1917-1937. Par D.S. Paris, F.N.C., no date. Pp. 32.

La philosophie des races du Comte de Gobineau et sa portée actuelle. Par ANDRÉE COMBRIS. Paris, Félix Alcan, 1937. Pp. 280.

Le régime corporatif et les catholiques sociaux. Par GEORGES JARLOT. Paris, Ernest Flammarion, 1938. Pp. 262.

Le problème de la méthode. Par MARIN STEFANESCO. Paris, Félix Alcan, 1938. Pp. vi, 364.

Défense de la vie. Par LOUIS VIALLE. Paris, Félix Alcan, 1938. Pp. vi, 169.

La morale antique. Par LÉON ROBIN. Paris, Félix Alcan, 1938. Pp. iv, 180.

Lumière nouvelle. Par L. A. JACQUIN. Lyon, Joannès Desvigne et Cie, no date. Pp. 46; viii figures.

L'équilibre universel. Par L. A. JACQUIN. Lyon, Joannès Desvigne et Cie, 1938. Pp. 232.

L'Opuscule de Siger de Brabant "De aeternitate Mundi". Par W. J. DWYER. Louvain, Institut supérieur de philosophie, 1937. Pp. 48.

Philosophie de la religion. Par PAUL ORTEGAT. Bruxelles, L'édition Universelle, S.A., no date. Pp. 478.

Sein und Wert. Eine metaphysische Auslegung des Axioms: "Ens et bonum convertuntur" im Raume der scholastischen Transzendentalienlehre. Erste Hälfte: *Das Seiende und das Sein.* Von JOHANNES B. LOTZ. Paderborn, Ferdinand Schöningh, 1938. Pp. xviii, 148.

Metaphysik der Biologie von heute. Die Fragen des Lebensprinzips und der Lebensentwicklung und die neuer Forschung. Von ALOYS WENZL. Leipzig, Felix Meiner, 1937. Pp. 58.

Über Gegenstand und Methode des völkischen Rechtsdenkens. Von KARL LARENZ. Berlin, Junker und Dünnhaupt, 1938. Pp. 56.

Die Willenserklärung und der Pflichtgedanke im Rechtsverkehr. Von HEINZ RHODE. Berlin, Junker und Dünnhaupt, 1938. Pp. 116.

Deutsches Arbeitsrecht. Ein Grundriss. Von ALFRED HUECK. Berlin, Junker und Dünnhaupt, 1938. Pp. 232.

Philosophie und Pädagogik Paul Häberlins in ihren Wandlungen. Von PETER KAMM. München, Ernst Reinhardt, 1938. Pp. 480.

Wirklichkeit und Sinn. Band I: Die objektive Gewordenheit des Sinns in der sinnfreien Wirklichkeit. Band II: Das subjektive Recht des Sinns über die Wirklichkeit. Von WILHELM BURKAMP. Berlin, Junker und Dünnhaupt, 1938. Pp. 328; 538.

Studia Philosophica, II. Commentarii Societatis Philosophicae Polonorum. Curantibus K. AJDUKIEWICZ, R. INGARDEN, K. TWARDOWSKI. Leopoli, "Ksiazka" (A. Mazzucato), 1937. Pp. vii, 520.

NOTES

Due to an oversight the report on the Ninth International Congress of Philosophy failed to include among American participation in the program the paper on Descartes' Influence in Seventeenth Century England, read by Paul Russell Anderson of Lake Erie College, Painsville, Ohio.

We regret to report that Dr. Bonno Tapper, Associate Professor of Philosophy in the State University of Iowa, died April 4, 1938.

Dr. William Stern, Professor of Psychology and Philosophy at Duke University, died suddenly on March 27, 1938. He was born in Berlin in 1871 and received his doctor's degree at the University of Berlin. In 1897 he became Privat-Dozent, and in 1907 Ausserordentlicher Professor, at the University of Breslau. Later he assisted in the establishment of the University of Hamburg, where he became the colleague of Dr. Cassirer as Professor of Philosophy and Psychology in 1919, a position he occupied until 1933 when he was retired on racial grounds by the present German government. He was at Duke University from 1934 till his death. His chief philosophical publication was his three volume treatise *Person und Sache* (1907-24).

The following is a list of articles in current philosophical periodicals:

MIND XLVII 186: *H. B. Acton,* Man-Made Truth; *H. Barker,* Notes on the Second Part of Spinoza's *Ethics* (I); *A. E. Taylor,* The "Polytheism" of Plato: an Apologia; *Helen Wodehouse,* Language and Moral Philosophy; *C. D. Hardie,* Logical Positivism and Scientific Theory; *M. B. Foster,* A Mistake of Plato's in the "Republic": a Rejoinder to Mr. Mabbott.

PHILOSOPHY XIII 50: *E. F. Carritt,* Moral Positivism and Moral Aesthetic-ism; *H. Dingle,* The Rational and Empirical Elements in Physics; *R. F. Alfred Hoernlé,* Would Plato Have Approved of the National-Socialist State?; *David Baumgardt,* Some Merits and Defects of Contemporary German Ethics; *Arnold H. Kamiat,* An Outline of an Order Philosophy.

THE JOURNAL OF PHILOSOPHY XXXV 5: *Wendell T. Bush,* Footnotes to Esthetics; *H. Reichenbach, Charles Hartshorne, J. H. Randall, Jr.,* Comments and Criticisms. 6: *Charles E. Whitmore,* The Locus of Novelty; *Jared S. Moore,* The Significance of the Egocentric Situation; *Y. H. Krikorian,* An Empirical Definition of Consciousness. 7: *Albert G. A. Blaz,* Descartes—After Three Centuries; *Daniel S. Robinson,* The Cartesian Studies of the Ninth International Congress of Philosophy; *M. Whitcomb Hess,* A Note on the Individualism of Descartes. 8: *W. Donald Oliver,* The Logic of Perspective Realism; *Ralph W. Erickson,* Planck's Concept of Causality.

THE JOURNAL OF SYMBOLIC LOGIC III 1: *L. Chwistek* and *W. Hetper,* New foundation of formal metamathematics; *W. V. Quine,* Completeness of the propositional calculus.

ETHICS XLVIII 3: *Walton H. Hamilton,* The Path of Due Process of Law; *Richard McKeon,* The Development of the Concept of Property in Political Philosophy: A Study of the Background of the Constitution; *Hans Kelsen,* Platonic Justice; *Gustav E. Mueller,* The Art of Living.

JOURNAL OF SOCIAL PHILOSOPHY III 3: *R. M. MacIver,* The Philosophical

Background of the Constitution; *Albert Salomon,* Sociology and Sociologism; *Alpheus T. Mason,* The Dilemma of Liberalism; *Lazar Volin,* Henry Carter Adams: Critic of Laissez-Faire; *Carl S. Friedrich,* Thomas Hobbes: Myth Builder of the Modern World; *Victor S. Yarros,* Mr. Lippmann's Gospel of Nostalgic Futilities; *Walter Lippmann,* Liberalism, Intolerance and Social Philosophy.

THE HIBBERT JOURNAL XXXVI 3: *H. N. Spalding,* Oxford and Lord Nuffield; *Oscar Ljungström,* Universal Divinity: A Glimpse of the Wisdom of the East; *T. B. Luard,* The Eternal Creator in Eastern and Western Thought; *Wilfred Bovey,* The Unjust God? Job's Problem and Ours; Doctrine in the Church of England: Lay Comments on the Commission's Report, *Guy Kendall,* I; *E. N. Mozley,* II; *Alfred Loisy,* Was Jesus an Historical Person?; *W. J. Sparrow Simpson,* Adolf Harnack; *Oswald Schwarz,* The Birthplace of Character; *H. Crichton-Miller,* The Child's Approach to Philosophy; *E. R. Punshon,* The Artist and His Audience; *Edward Quinn,* The Religion of National Socialism; *G. Dawes Hicks,* Survey of Recent Philosophical Literature.

THE JOURNAL OF RELIGION XVIII 2: *Werner Jaeger,* Greeks and Jews: The First Records of Jewish Religion; *John Knox,* Philemon and the Authenticity of Colossians; *Gordon Boit Wellman,* Schleiermacher Today; *Conrad Henry Moehlman,* The Baptists Revise John Locke; *B. T. Schantz,* Ethan Allen's Religious Ideas.

THE REVIEW OF RELIGION II 3: *Friedrich Spiegelberg,* New Names of God; *George Stewart,* Evil and Suffering—The Reflections of a Minister; *Clarence A. Manning,* Russian Nationalism and the Old Believers.

THE NEW SCHOLASTICISM XII 2: *J. Tate,* Plato, Art and Mr. Maritain; *Kenneth K. Berry,* Matter in the "De Ente"; *Stephen C. Y. Pan,* A Brief Survey of Confucius' Political Philosophy; *Joseph E. Loftus,* Psychology Today.

ANGLICAN THEOLOGICAL REVIEW XX 2: *Charles W. Lowry,* The Genesis of the Religious Formula of the Trinity; *Frederick C. Grant,* Studies in the Text of St. Mark; Church Congress Syllabus No. 2: "The Content of and Authority for Christian Evangelism": Part III: *Gregory Vlastos,* Modern Criticisms of the Christian Evangel; *Cyril C. Richardson,* Dom McCann's "Saint Benedict".

SPECULUM XIII 2: *J. S. P. Tatlock,* Caradoc of Llancarfan; *F. J. Carmody, De Bestiis et Aliis Rebus* and the Latin Physiologus; *C. Meredith-Jones,* The Chronicle of Turpin in Saintonge; *A. A. Vasiliev,* Mesarities as a Source; *G. A. Borgese,* The Wrath of Dante; *B. L. Ullman,* Manuscripts of Nicholas of Cues; *Helen R. Bittermann,* The Council of Chalcedon and Episcopal Jurisdiction; *C. W. Jones,* Two Easter Tables; *A. H. Krappe,* Who *Was* the Green Knight?; *William Roach,* A New *Perlesvaus* Fragment; *R. S. Loomis,* Geoffrey of Monmouth and the Modena Archivolt; *Pauline Aiken,* Chaucer's *Legend of Cleopatra* and the *Speculum Historiale; Giovanni Cardinal Mercati,* Conjectures upon the text of the *Preconia Frederici II.*

ANALYSIS V 2: *Celia Fremlin,* Must We Always Think in Propositions? *A. M. MacIver,* Last Words to Miss MacDonald; Meeting of Analysis Society.

THE AMERICAN JOURNAL OF PSYCHOLOGY LI 2: M. Bentley, Cornell Studies in Dynasomatic Psychology; *H. C. Werner,* A Descriptive Study of Somatic Objects; *M. S. Ryan,* An Experimental Approach to the Self-Object; *R. M. Lindner,* An Experimental Study of Anticipation; *S. G. Longwell,* Progressive Change in Simple Action; A Study of Learning; *T. A. Ryan,* Mathematical Objects and Symbolizing; *M. L. Lemmon,* A Psychological Consideration of Analogy; *M. Bentley,* Retrospect and Prospect; *Z. Y. Kuo,* Ontegeny of Embryonic Behavior in Aves. XII. Stages in the Development of Physiological Activities in the Chick Embryo; *T. M. Abel,* The Influence of Social Facilitation on Motor Performance at Different Levels of Intelligence; *J. P. Nafe* and *K. S. Wagoner,* The Effect of Pain upon Systemic Arterial Blood Pressure; *B. R. Philip,* Sex Differences in the Perception of Color Mass.

PSYCHOLOGICAL REVIEW XLV 2: *I. Krechevsky,* A Study of the Continuity of the Problem-Solving Process; *E. A. Culler,* Recent Advances in Some Concepts of Conditioning; *Christian A. Ruckmick,* A Critique of the 'Galvanic' Technique; *Edward Chace Tolman,* A Reply to Professor Guthrie; *W. N. Kellogg,* An Eclectic View of Some Theories of Learning; *Thomas Ross,* The Synthesis of Intelligence—Its Implications.

JOURNAL OF EXPERIMENTAL PSYCHOLOGY XXII 3: Experimental Studies in Rote-Learning Theory I: *C. I. Hovland,* Reminiscence Following Learning by Massed and by Distributed Practice; *A. A. Campbell,* The Interrelations of Two Measures of Conditioning in Man; *C. H. Coombs,* Adaptation of the Galvanic Response to Auditory Stimuli; *L. E. Travis* and *V. Barber,* The Effect of Tactile Stimulation upon the Berger Rhythem; *A. Skolnick,* The Upper Limit of Cutaneous Sensitivity to Frequency of Vibration in the White Rat; *B. Baxter* and *R. C. Travis,* The Reaction Time to Vestibular Stimuli; *C. H. Bean,* The Blind Have "Optical Illusions". 4: *E. R. Hilgard* and *L. G. Humphreys,* The Effect of Supporting and Antagonistic Voluntary Instructions on Conditioned Discrimination; *R. E. P. Youtz,* Reinforcement, Extinction, and Spontaneous Recovery in a Non-Pavlovian Reaction; *M. H. Trowbridge,* A Study of Backward and Remote Forward Association; Experimental Studies in Rote-Learning Theory, II: *C. I. Hovland,* Reminiscence with Varying Speeds of Syllable Presentation; *H. Gurnee,* The Effect of Electric Shock for Right Responses on Maze Learning in Human Subjects; *B. Stokvis,* A New Method for the Uninterrupted Registering of Blood Pressure as a Psycho-Physiological Research Technique for the Study of Psychic Stimuli on the Blood Pressure; *E. H. Porter, Jr.* and *C. S. Hall,* A Further Investigation of the Role of Emphasis in Learning; *F. A. Courts* and *D. Waggoner,* The Effect of "Something Happening" after a Response; *S. H. Bartley,* Subjective Flicker Rate with Relation to Critical Flicker Frequency.

PSYCHOLOGICAL BULLETIN XXXV 3: *L. F. Beck,* A Review of Sixteen-Millimeter Films in Psychology and Allied Sciences. 4: *Karl U. Smith* and *Samuel Bojar,* The Nature of Optokinetic Reactions in Mammals and Their Significance in the Experimental Analysis of the Neural Mechanisms of Visual Functions; *Leonard W. Doob,* An "Experimental" Study of the Psychological Corporation; *L. L. Thurstone,* Shifty and Mathematical Components: A Critique of Anastasi's Monograph on the Influence of

Specific Experience upon Mental Organization. 5: *Samuel W. Fernberger,* The Scientific Interests and Scientific Publications of the Members of the American Psychological Association, Inc.; *Ernest R. Hilgard,* A Summary and Evaluation of Alternative Procedures for the Construction of Vincent Curves; *Neil Warren* and *Brant Clark,* A Consideration of the Use of the Term Ocular Dominence; *H. B. English,* On Citations to Scientific Literature; *H. L. Hollingworth,* Memories of the Early Development of the Psychology of Advertising Suggested by Burtt's Psychology of Advertising.

THE MAHA-BODHI XLVI 2 & 3: *Devapriya Valisinha,* The Bodhisatta Ideal; *A. J. Edmunds,* The Buddhist Love Thoughts in Chinese; *J. Pistor,* Simplicity of Truth; *Bhadanta Ananda Kausalyayana,* A.B.C. of Buddhism; *Bhikkhu Piyadassi,* The Son Receives the Greatest of Gifts from the Father; *Bhikkhu Metteyya,* The Pure Refuge of Pity, and the Scent of Sanctity; *A. C. Albers,* Art; Bhikkhu, The Secret of Indian Civilization; The Conscience of a Nation.

REVUE PHILOSOPHIQUE LXIII 3 et 4: *D. Roustan,* La première édition des œuvres complètes de Malebranche; *E. Bréhier,* Les "jugements naturels" chez Malebranche; *H. Gouhier,* Philosophie chrétienne et théologie. A propos de la seconde polémique de Malebranche; *H. Pollnow,* Réflexions sur les fondements de la psychologie chez Malebranche; *P. Schrecker,* Le parallélisme théologico-mathematique chez Malebranche; *A. Banfi,* Malebranche et l'Italie; *A. A. Luce,* Malebranche et le Trinity College de Dublin; *P. Schrecker,* Les diables appelés "Malebranche"; *P.-M. Schuhl,* Malebranche et Quesnay.

REVUE D'HISTOIRE DE LA PHILOSOPHIE ET D'HISTOIRE GENERALE DE LA CIVILISATION N.S. 21: *Jean Lameere,* Les concepts du Beau et de l'Art dans la doctrine platonicienne; *Antoine Adam,* A travers la "Querelle du Cid"; *Henri Gouhier,* F. -G. Coessin, reformateur de l'Englise et critique de l'industrialisme.

ARCHIVES DE PHILOSOPHIE XIV 1: *E. Rolland* et *L. Esquirol,* La Philosophie Chrétienne de Malebranche: La Nature et la Grâce (1638-1938).

BLATTER FÜR DEUTSCHE PHILOSOPHIE XI 4: *Otto Friedrich Bollnow,* Existenzphilosophie und Geschichte; *Robert Heiss,* Formalismus und Antiformalismus in der neueren Philosophie; *Gerhard Nebel,* Neue Forschungen zu den Vorsokratikern.

SCHOLASTIK XIII 2: *Joh. B. Lotz,* Immanenz und Transzendenz heute. Zur inneren Struktur der Problematik unserer Tage; *August Brunner,* Ursprung und Grundzüge der Existenzialphilosophie; *Karl Prümm,* Göttliche Planung und menschliche Entwicklung nach Irenäus Adversus haereses. I. Voraussetzunger—Die Entwicklung im Heilsleben des Einzelmenschen; *Heinrich Weisweiler,* Das wiedergefundene Gutachten des Magister Petrus über die Verherrlichung des Gottessohnes gegen Gerhoh von Reichersberg. Ein Beitrag auch zur Wesensbestimmung der Scholastik; *Karl Frank,* Naturphilosophie und Okkultismus.

DIE TATWELT XIV 1: *K. Hesse,* Ideen und Ideale des deutschen Soldaten im Wandel der Zeiten; *Gabriel Marcel,* Gedanken zu einer konkreten Philosophie; *Gerhard Dulckeit,* Das Selbstbewusstwerden des Geistes; *Rudolph Leitem,* Der Zugang zur Tatwelt.

RIVISTA DI FILOSOFIA XXIX 2: *N. Robbio,* La personalità di Max Scheler;

B. Leoni, Aspetti e problemi della "Philosophie des Als Ob" di Hans Vaihinger; *E. Paci,* Filosofia della natura e filosofia della scienzo.

Logos XX 4: *Adolfo Levi,* Il pensiero del Descartes nelle "Regulae ad directionem ingenii" e nella metodologia del "Discours de la méthode"; *G. E. Barié,* Il problema dell'oggettività; *Aida Schenardi Porcù,* Africano Spir; *Cleto Carbonara,* Trascendenza e Trascendentalitià; *Mario M. Rossi,* Tentativi di delimitazione del mondi del valido; *M. F. Sciacca,* La filosofia di Pantaleo Carabellese; *Zerella Francesco,* Lo storicismo spiritualistico di Panfilo Serafini; *Antonino Lovecchio,* Intorno alla Storia della logica del Prantl; *Cleto Carbonara,* Del principio della filosofia critica dell'esperienza.

Giornale Critico della Filosofia Italiana V 6: *G. Gentile,* L'oggetto della storia (continuazione); *G. Candeloro,* Il pensiero politico di David Hume (continuazione); *G. Radetti,* Questioni Spinoziane. VI 1: *L. Grassi,* Intorno alla cosiddetta filosofia della scienza; *L. Stefanini,* Incremento dell'Umanesimo; *P. Giuffrida,* Valore e significato del Menesseno; *V. Imbriani,* L'eternità del pensiero e A. C. De Meis; *F. Enriques,* Sempre a Proposito di Zenone.

Rivista di Filosofia Neo-Scolastica XXX 1: Cronaca della Facoltà di Filosofia e della Facoltà di Pedagogia dell'Università Cattolica del S. Cuore—anno accademico 1937-38; *Luigi Gui,* Lo scetticismo e la sua soluzione scettica nel pensiero di David Hume; *Franco Amerio,* Il principio di causalità in San Tomaso; *Carlo Colombo,* Pubblicazioni in occasione del centenario cartesiano; *Giancarlo Vigorelli,* "Aristocrazia del cattolicesimo" —Testimonianza di G. Comi.

Annali Della R. Scuola Normale Superiore di Pisa VI 3-4: Augusto *Guzzo,* Messianismo, dialettismo e gnoseologia scettica nella storiografia filosofica; *Luigi Russo,* I luoghi, i novellatori, l'architettura e la peste del "Decameron"; *Sergio Lupi,* Il problema dello stile di J. G. Hamann; *Piero Treves,* Per la critica e l'analisi del libro XVI di Diodoro; *Antonio Viscardi,* Le canzoni di gesta, i temi tradizionali, le fonti letterarie e diplomatiche (continua); *Aldo Borlenghi,* Le "Operette morali" di Giacomo Leopardi.

Revista de Psicologia i Pedagogia V 17: *J. Torrens-Ibern,* Les mesures de relació més aptes per a ésser utilitzades en l'estadística biològica; *G. Soler Dopff* I *A. Rivas Mirò,* Aportació a l'estudi del tipus metabòlic normal en el nostre país; *Hans Grünberg,* La idea de pau com a problema educatiu; *Adolf Azoy,* Valoración acumétrica y audiométrica del umbrai de audición; *Angel Valbuena,* En torno a la psicoanalisis de Don Juan; *J. Solanes Vilaprenyo,* Idees per a una psicoteràpia de les sindromes psiquiatriques de guerra.

Scientia XXXII 3: *F. Enriques,* Importanza della storia del pensiero scientifico nella cultura nazionale; *W. B. Crow,* Periodicity in Classification; *E. Bleuler,* Bewusstheit und Unbewusstes; *A. Aubréville,* La forêt equatoriale et les formations forestières tropicales africaines. 4: *A. Reymond,* Le problème de la classification des sciences: esquisse historico-critique; *A. Pochettino,* La dissipazione della nebbia; *E. Bergler,* Ueber den gegenwärtigen Stand der psychoanalytischen Wissenschaft; *A. Dittrich,* La chronologie et l'astronomie des Mayas; *M. C. Burkitt,* The Complexity of Prehistoric Cultures.

Gregorianum XIX 1: *A. Segovia,* Estudios sobre la terminologia trini-

taria en la época postnicena; *F. Pelster,* Beiträge zur Bestimmung der theologischen Stellung des Petrus de Trabibus (vor 1300); *F. Segarra,* Algunas observaciones sobre los principales textos escatológicos de nuestro Sẽnor: S. Mat. XXIV, 34; *T. Zapelena,* De via notarum in recenti quodam opere; *J. M. Bover* La esperanza en la Epistola a los Hebreos; *B. Jansen,* Neuscholastische Erkenntnistheorie; *S. Gonzales,* El simbolo de S. Gregorio de Nisa y su posición entre los simbolos de Capadocia.